LIFEBOOK™

User's Guide

E SERIES

The Power And Choices You Demand.

FUJITSU

FUJITSU PC CORPORATION

Copyright

Fujitsu PC Corporation has made every effort to ensure the accuracy and completeness of this document. However, as ongoing development efforts are continually improving the capabilities of our products, we cannot guarantee the accuracy of the contents of this document. We disclaim liability for errors, omissions, or future changes.

Fujitsu and the Fujitsu logo are registered trademarks and LifeBook is a trademark of Fujitsu Limited.

Built for Humans and ErgoTrac are trademarks of Fujitsu PC Corporation.

The following are registered trademarks of IBM Corporation: IBM, IBM PC AT, IBM PS/2.

The following are registered trademarks of Microsoft Corporation: MS, MS-DOS, Windows 98.

PCMCIA is a trademark of the Personal Computer Memory Card International Association.

BaySwap is a registered trademark of Phoenix Technologies, Ltd.

Intel and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation.

Adobe Acrobat Reader is a registered trademark of Adobe System Inc.

Netscape Communicator is a registered trademark of Netscape Communications Corporation.

AOL is a registered trademark of American Online Inc.

PC-Doctor is a trademark of Watergate Software, Inc.

LapLink is a registered trademark of Traveling Software Inc.

McAfee VirusScan is a registered trademark of NAI.

All other trademarks mentioned herein are the property of their respective owners.

© Copyright 1999 Fujitsu PC Corporation. All rights reserved. No part of this publication may be copied, reproduced, or translated, without prior written consent of Fujitsu PC Corporation. No part of this publication may be stored or transmitted in any electronic form without the written consent of Fujitsu PC Corporation.

DECLARATION OF CONFORMITY

according to FCC Part 15

Responsible Party Name:	Fujitsu PC Corporation
Address:	598 Gibraltar Drive Milpitas, CA 95035
Telephone:	(408) 935-8800
Declares that product:	Model Configurations: LifeBook E6530 LifeBook E5520 LifeBook E5320 LifeBook E5140 Complies with Part 15 of the FCC Rules.

This device complies with Part 15 of the FCC rules. Operations are subject to the following two conditions: (1) This device must not be allowed to cause harmful interference, (2) This device must accept any interference received, including interference that may cause undesired operation.

CAUTION

Changes or modification not expressly approved by Fujitsu PC Corporation could void this user's authority to operate the equipment.

FCC NOTICES

Notice to Users of Radios and Television

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet that is on a different circuit than the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device.

Notice to Users of the US Telephone Network

Your LifeBook Series notebook may be supplied with an internal modem which complies with Part 68 of the FCC rules. On this notebook is a label that contains the FCC Registration Number and the Ringer Equivalence Number (REN) for this equipment among other information. If requested, the user must provide their telephone company with the following information:

1. The telephone number to which the notebook is connected.
2. The Ringer Equivalence Number (REN) for this equipment.
3. That the equipment requires a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant.
4. The FCC Registration Number.

This equipment is designed to be connected to the telephone network or premises wiring using a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant and a line cord between the modem and the telephone network with a minimum of 26AWG.

The REN is used to determine the number of devices that you may connect to your telephone line and still have all of those devices ring when your number is called. Too many devices on one line may result in failure to ring in response to an incoming call. In most, but not all, areas the sum of the RENs of all of the devices should not exceed five (5). To be certain of the number of devices you may connect to your line, as determined by the RENs, contact your local telephone company.

If this equipment causes harm to the telephone network, your telephone company may discontinue your service temporarily. If possible, they will notify you in advance. If advance notice is not practical they will notify you as soon as possible. You will also be advised of your right to file a complaint with the FCC.

This fax modem also complies with fax branding requirements per FCC Part 68.

Your telephone company will probably ask you to disconnect this equipment from the telephone network until the problem is corrected and you are sure that the equipment is not malfunctioning. This equipment may not be used on coin-operated telephones provided by your telephone company. Connection to party lines is subject to state tariffs. Contact your state's public utility commission, public service commission or corporation commission for more information.

This equipment includes automatic dialing capability. When programming and/or making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in off-peak hours, such as early morning or late evening.

FCC rules prohibit the use of non-hearing aid compatible telephones in the following locations or applications:

- All public or semipublic coin-operated or credit card telephones.

- Elevators, highways, tunnels (automobile, subway, railroad or pedestrian) where a person with impaired hearing might be isolated in an emergency.
- Places where telephones are specifically installed to alert emergency authorities such as fire, police or medical assistance personnel.
- Hospital rooms, residential health care facilities, convalescent homes and prisons.
- Workstations for the hearing impaired.
- Hotel, motel or apartment lobbies.
- Stores where telephones are used by patrons to order merchandise.
- Public transportation terminals where telephones are used to call taxis or to reserve lodging or rental cars.
- In hotel and motel rooms as at least ten percent of the rooms must contain hearing aid compatible telephones or jacks for plug-in hearing aid compatible telephones which will be provided to hearing impaired customers on request.

DOC (INDUSTRY CANADA) NOTICES

Notice to Users of Radios and Television

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

CET appareil numérique de la class B respecte toutes les exigence du Réglement sur le matérial brouilleur du Canada.

Notice to Users of the Canadian Telephone Network

The Canadian Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

LifeBook Series notebook computers are supplied with an internal modem which complies with the Industry Canada certification standards for telecommunication network protection and safety requirements. Before connecting this equipment to a telephone line the user should ensure that it is permissible to connect this equipment to the local telecommunication facilities. The user should be aware that compliance with the certification standards does not prevent service degradation in some situations.

Repairs to telecommunication equipment should be made by a Canadian authorized maintenance facility. Any repairs or alterations not expressly approved by Fujitsu™ PC Corporation or any equipment failures may give the telecommunication company cause to request the user to disconnect the equipment from the telephone line.

The connecting arrangement code for this equipment is CA11A.

The Load Number is 0.2.

The Load Number assigned to each telephone terminal device denotes the percentage of the total load to be connected to a telephone loop or circuit which is used by the device to prevent overloading. The termination on a loop may consist of any combination of devices such that the total of the load numbers of all devices does not exceed 100.

CAUTION

For safety, users should ensure that the electrical ground of the power utility, the telephone lines and the metallic water pipes are connected together. Users should NOT attempt to make such connections themselves but should contact the appropriate electric inspection authority or electrician. This may be particularly important in rural areas.

Avis Aux Utilisateurs Du Réseau Téléphonique Canadien

L'étiquette canadienne Industrie Canada identifie l'équipement certifié. Cette certification signifie que l'équipement satisfait certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le département ne garantit pas le fonctionnement de l'équipement à la satisfaction de l'utilisateur.

La série LifeBookTM E possède un modem interne conforme aux normes de certification d'Industrie Canada pour protéger les réseaux de télécommunications et satisfaire aux normes de sécurité. Avant de connecter cet équipement à une ligne téléphonique, l'utilisateur doit vérifier s'il est permis de connecter cet équipement aux installations de télécommunications locales. L'utilisateur est averti que même la conformité aux normes de certification ne peut dans certains cas empêcher la dégradation du service.

Les réparations de l'équipement de télécommunications doivent être eVectuées par un service de maintenance agréé au Canada. Toute réparation ou modification, qui n'est pas expressément approuvée par Fujitsu PC Corp., ou toute défaillance de l'équipement peut entraîner la compagnie de télécommunications à exiger que l'utilisateur déconnecte l'équipement de la ligne téléphonique.

Le code d'arrangement de connexion de cet équipement est CA11A.

Le numéro de charge est 0.2.

Le numéro de charge assigné à chaque terminal téléphonique indique le pourcentage de la charge totale pouvant être connecté à une boucle ou à un circuit téléphonique, utilisé par ce périphérique afin de prévenir toute surcharge. La terminaison d'une boucle peut être constituée de n'importe quelle combinaison de périphériques de sorte que le total de numéros de charge de tous les périphériques n'excède pas 100.

AVERTISSEMENT

Pour assurer la sécurité, les utilisateurs doivent vérifier que la prise de terre du service d'électricité, les lignes télphoniques et les conduites d'eau métalliques sont connectées ensemble. Les utilisateurs NE doivent PAS tenter d'établir ces connexions eux-mêmes, mais doivent contacter les services d'inspection d'installations électriques appropriés ou un électricien. Ceci peut être particulièrement important en régions rurales.

UL Notice (For Authorized Repair Technicians Only)

CAUTION

For continued protection against risk of fire, replace only with the same type and rating fuse.

CAUTION

Danger of explosion if CMOS battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instruction.

Fujitsu LifeBook E Series Notebook
Table of Contents

SECTION ONE
PREFACE

Preface
About This Guide 3
Fujitsu PC Contact Information 3
Warranty 3

SECTION TWO
GETTING TO KNOW YOUR LIFEBOOK

Overview
Unpacking 7
LifeBook Features 8
Valuable LifeBook Software 8
Popular Accessories 9

Locating the Controls and Connectors
Top and Front Components 10
Left-Side Panel Components 12
Right-Side Panel Components 13
Rear Panel Components 14
Bottom Components 15

Status Indicator Panel
Power Indicator 16
AC Adapter Indicator 16
Battery Level Indicators 16
Battery Charging Indicators 17
DVD/CD-RW/CD-ROM Drive Access Indicator 17
Hard Drive or Removable Media Drive Access Indicator 17
Floppy Disk Drive Access Indicator 18
PC Card Access Indicators 18
NumLk Indicator 18
CapsLock Indicator 18
ScrLk Indicator 18

Keyboard
Using the Keyboard 19
Numeric Keypad 19
Windows Keys 19
Cursor Keys 20
Function Keys 20

ErgoTrac Pointing Device
Clicking 21
Double-Clicking 21
Dragging 22
ErgoTrac Control Adjustment 22

Touchpad Pointing Device
Clicking 23
Double-Clicking 23
Dragging 24
Touchpad Control Adjustment 24

Volume Control
Controlling the Volume 25
Setting the Hardware Volume Control 25

Flexible Bay Devices
Removing and Installing Modular Devices 27

LifeBook Security Application Panel
Setup Your LifeBook Security Panel 29
Passwords 29
Operating Your LifeBook Security Application Panel 30
Uninstalling the Security Application Panel 31
Launching Applications with the Security Application Panel 31

Pre-Installed Software
Learning About Your Application Software. 34
PC Doctor 34
LapLink Professional. 34
McAfee VirusScan 34
PMSet 98. 34
Adobe Acrobat Reader. 34
ESS AudioRack 32 34
LifeBook Security Application Panel Software. . . 35
LifeBook Application Panel Software 35
BaySwap 35

SECTION THREE
GETTING STARTED

Power Sources
Connecting the Power Adapters. 39

Display Panel
Opening the Display Panel. 40
Adjusting Display Panel Brightness. 40
Closing the Display Panel. 40

Starting Your LifeBook
Power ON 41
Boot Sequence. 41
BIOS Setup Utility 41
Booting the System with Windows 98 42
Registering Your LifeBook 43

Power Management
Power/Suspend/Resume Button 44
Suspend Mode. 44
Save-to-Disk Mode 44
Idle Mode 46
Standby Mode. 46
Display Timeout. 46
Hard Disk Timeout. 46
Windows 98 Power Management 46
Restarting the System 47
Power Off 47

SECTION FOUR
USER INSTALLABLE FEATURES

Lithium Ion Battery
Recharging the Batteries 51
Replacing the Battery. 52

SuperDisk™ 120 or Floppy Disk Drive
Loading a Disk. 53
Ejecting a Disk 53
Software Eject for LS-120 Disk. 53
Preparing a Disk for Use. 53

CD-ROM Drive
Loading a CD. 55
Removing a CD 56
Automatic Insertion Function. 56

DVD/CD-ROM Drive
DVD Player Software. 57
Loading a DVD/CD 58
Removing a DVD/CD 58
Using the DVD Player Software. 58
Using the DVD Player on Battery Power 59
Automatic Insertion Function. 60

Hard Disk Drive
Formatting the Hard Disk Drive 61
Modular Hard Disk Drive. 61

PC Cards

Installing PC Cards 63
Removing PC Cards 64

Memory Upgrade Module

Installing a Memory Upgrade Module 65
To Remove a Memory Upgrade Module: 66
Checking the Computer Recognition of New Memory Capacity 66

Device Ports

Communications Port 67
Parallel Port 67
Serial Port 67
PS/2 Port 67
Universal Serial Bus Port 68
Infrared Port 68
Wireless Infrared Mouse Port 68
Microphone Jack 68
Stereo Line-In Jack 69
Headphone Jack 69
Docking Port 69
External Monitor Port 69
External Floppy Disk Drive Port 69

SECTION FIVE
TROUBLESHOOTING

Troubleshooting

Identifying the Problem 73
Specific Problems 73
Troubleshooting Table 74
Power On Self Test Messages 83
Emergency DVD/CD-ROM Tray Release 85
Modem Result Codes 85
Recovery CD-ROM 86

SECTION SIX
CARE AND MAINTENANCE

Care and Maintenance

LifeBook Series Notebook 91
Batteries 92
Floppy Disks and Drives 92
DVDs and CDs 93
PC Cards 93

SECTION SEVEN
SPECIFICATIONS

Specifications

Configuration Label 97
Microprocessor 97
Memory 97
Video 97
Audio 98
Mass Storage Device Options 98
Features 98
Device Ports 98
Keyboard 99
Power 99
Dimensions and Weight 99
Environmental Requirements 99

SECTION EIGHT

Glossary

Index

Section One
Preface

Preface

About This Guide 3
Fujitsu PC Contact Information 3
Warranty 3

Preface

ABOUT THIS GUIDE

The LifeBook E Series notebook from Fujitsu PC Corporation is a powerful notebook computer. It is powered by an Intel® Pentium® or Celeron™ microprocessor, has a built-in color display, a vast array of possible configurations, and brings the computing power of desktop personal computers (PCs) to a portable environment.

This manual explains how to operate your LifeBook Series' hardware and built-in system software. Your notebook is compatible with the IBM® PC AT.

It comes with Windows 98 Second Edition pre-installed.

The LifeBook E Series notebook is a completely self-contained unit with an active-matrix (TFT) color LCD display. It has a powerful interface that enables it to support a variety of optional features.

Conventions Used in the Guide

Keyboard keys appear in brackets.
Example: [FN], [F1], [ESC], [ENTER] and [CTRL].

Pages with additional information about a specific topic are cross-referenced within the text.
Example: (See page xx.)

On screen buttons or menu items appear in bold
Example: Click **OK** to restart your notebook.

DOS commands you enter appear in Courier type.
Example: `Shutdown the computer?`

POINT

The point icon highlights information that will enhance your understanding of the subject material.

CAUTION

The caution icon highlights information that is important to your safety, to the safe operation of your computer, or to the integrity of your files. Please read all caution information carefully.

WARNING

The warning icon highlights information that can be hazardous to either you, your notebook, or your files. Please read all warning information carefully.

FUJITSU PC CONTACT INFORMATION

Service and Support

You can contact Fujitsu Service and Support the following ways:

- Toll free: 1-800-8FUJITSU (1-800-838-5487)
- Fax: 1-901-259-5700
- E-mail: 8fujitsu@fpc.fujitsu.com
- Web site: http://www.8fujitsu.com

Before you place the call, you should have the following information ready so that the customer support representative can provide you with the fastest possible solution:

- Product name
- Product configuration number
- Product serial number
- Purchase date
- Conditions under which the problem occurred
- Any error messages that have occurred
- Hardware configuration
- Type of device connected, if any

Fujitsu On-line

You can go directly to the on-line Fujitsu Product catalog for your notebook by clicking on the LifeBook Accessories Web site URL link, located in the Windows Start menu.

You can also reach Fujitsu Service and Support on-line by clicking on the Fujitsu Service and Support Web site URL link, located in the Service and Support Software folder of the Windows Start menu.

POINT

You must have an active internet connection to use the on-line URL links.

WARRANTY

Your notebook is backed by a one year International Limited Warranty and includes toll-free technical support. Check the service kit that came with your notebook for warranty terms and conditions.

Section Two
Getting to Know Your LifeBook

Overview
Unpacking 7
LifeBook Features. 8
Valuable LifeBook Software 8
Popular Accessories 9

Locating the Controls and Connectors
Top and Front Components 10
Left-Side Panel Components 12
Right-Side Panel Components 13
Rear Panel Components. 14
Bottom Components 15

Status Indicator Panel
Power Indicator 16
AC Adapter Indicator 16
Battery Level Indicators 16
Battery Charging Indicators 17
DVD/CD-RW/CD-ROM Drive Access Indicator 17
Hard Drive or Removable Media Drive Access Indicator 17
Floppy Disk Drive Access Indicator 18
PC Card Access Indicators 18
NumLk Indicator 18
CapsLock Indicator. 18
ScrLk Indicator 18

Keyboard
Using the Keyboard 19
Numeric Keypad 19
Windows Keys 19
Cursor Keys 20
Function Keys 20

ErgoTrac Pointing Device
Clicking 21
Double-Clicking 21
Dragging 22
ErgoTrac Control Adjustment 22

Touchpad Pointing Device
Clicking 23
Double-Clicking 23
Dragging 24
Touchpad Control Adjustment 24

Volume Control
Controlling the Volume 25
Setting the Hardware Volume Control 25

Flexible Bay Devices
Removing and Installing Modular Devices 27

LifeBook Security Application Panel

Setup Your LifeBook Security Panel 29
Passwords 29
Operating Your LifeBook Security Application Panel 30
Uninstalling the Security Application Panel 31
Launching Applications with the Security Application Panel 31

Pre-Installed Software

Learning About Your Application Software 34
PC Doctor 34
LapLink Professional. 34
McAfee VirusScan 34
PMSet 98. 34
Adobe Acrobat Reader. 34
ESS AudioRack 32 34
LifeBook Security Application Panel Software. 35
LifeBook Application Panel Software 35
BaySwap 35

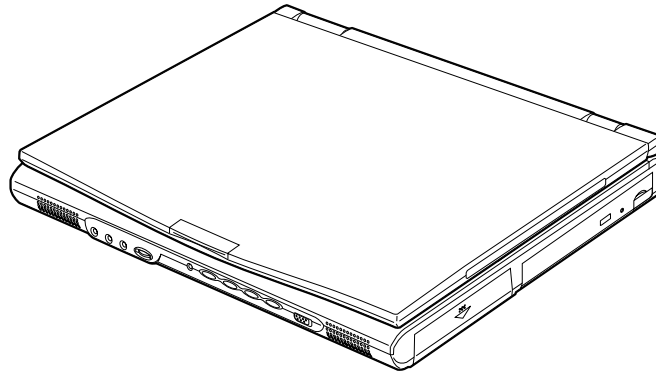


Figure 2-1 Fujitsu LifeBook E Series notebook

Overview

This section describes the components of your Fujitsu LifeBook E Series notebook. We strongly recommend that you read it before using your notebook – even if you are already familiar with notebook computers.

UNPACKING

When you receive your notebook, unpack it carefully, and compare the parts you have received with the items listed below.

For a Pre-configured model you should have:

- LifeBook E Series notebook from Fujitsu *(Figure 2-1)*
- Lithium ion battery, pre-installed
- AC adapter with AC power cord *(Figure 2-2)*
- Weight Saver
- Phone/ Modem (RJ-11) telephone cable or Internal LAN (RJ-45) cable
- Recovery and Application Restore CD-ROMs
- Getting Started Guide
- User's Guide
- Product Registration card
- Product Catalog
- International Limited Warranty Brochure
- Microsoft Windows 98 Guide
- Microsoft Windows Manual and Certificate of Authenticity
- First Cabin Registration card and envelope

Depending on your configuration these devices may also come with your notebook:

- DVD software CD (for models with DVD-ROM drive)
- IR Mouse (selected or custom configured models only)
- USB Camera and software CD (custom configured models only)
- Modular 3.5" floppy disk drive or External 3.5" floppy disk drive
- Modular SuperDisk 120 drive
- Modular Lithium Ion battery
- Modular Hard Disk drive

Depending on your configuration, one of the following devices is installed in the Flexible Bay.

- Modular 6x max DVD-ROM drive
- Modular 4x max CD-RW drive
- Modular 24x max CD-ROM drive

Once you have checked and confirmed that your notebook system is complete, read through the following pages to learn about all of your notebook's components.

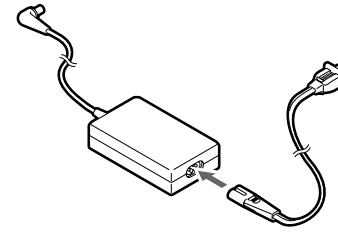


Figure 2-2 AC Adapter

LIFEBOOK FEATURES

The LifeBook E Series notebook is a compact, yet powerful notebook computer available with a variety of features, including: *(See Specifications on page 97 for more information)*

- Latest high-speed Intel mobile processor
- SDRAM system memory
- Clear, bright TFT display
- Lithium Ion battery
- Built-in 10GB, 8GB or 6.4GB hard drive
- ATI Mobility-P video, 4MB of video RAM
- External monitor support with simultaneous display capabilities
- Dual monitor support
- LifeBook Security Application Panel
- Communication Port which supports one of the following:
  - Internal 56K fax/data/voice modem with V.90 support
  - Internal Fast Ethernet (10/100 Base-T) network interface card with RJ-45 connector
- Flexible Bay which can support the following devices:
  - 6x max DVD-ROM drive
  - 4x max CD-RW drive
  - 24x max CD-ROM drive
  - 3.5" floppy disk drive
  - SuperDisk 120 drive
  - Second Lithium Ion battery
  - Second hard drive
- Full audio and video features:
  - 64 voice wavetable
  - Zoomed Video support for full motion video acceleration
  - Built-in stereo speakers
  - Built-in mono microphone
  - Stereo line-in jack
  - Stereo headphone jack
  - Microphone jack
- Combination PC card slot accommodates 2 Type II or 1 Type III cards
- Fast IrDA (4Mbps) compatible infrared port for wireless data transfer
- Integrated pointing device for superb cursor control and comfort
- Full-size 87-key keyboard with three dedicated Windows keys
- Hot swappable PS/2 port for external components
- USB device support
- wfm/DMI 2.0 compliant

VALUABLE LIFEBOOK SOFTWARE

- Microsoft Windows 98 operating system
- Microsoft Internet Explorer
- Microsoft Press Interactive Training for Windows 98
- LapLink Professional
- PC-Doctor
- PMSet 98
- McAfee VirusScan
- Adobe Acrobat Reader
- Netscape Communicator
- DVD Player (units with DVD drive)
- Internet Service Providers:
  - AOL
  - Compuserve™
  - Earthlink

POINT

Some software may come separately on a CD and will have to be installed.

POPULAR ACCESSORIES

For ordering or additional information on Fujitsu accessories please visit our Web site at www.fujitsu-pc.com or call 1-800-733-0884.

Memory Upgrades

66MHz or 100MHz Bus speed system:

- 32MB SDRAM
- 64MB SDRAM
- 128MB SDRAM

Docking/Expansions

- Full Dock II
- LANdock II
- Port Replicator II
- Universal LAN Hub

Power

- Lithium Ion battery
- Auto/Airline Adapter
- AC Adapter

Storage

- Floppy Disk Drive Cable
- Modular 10G Hard Disk drive
- Modular SuperDisk 120 drive
- Modular DVD-ROM drive
- Modular CD-RW drive
- Modular CD-ROM drive

PC Cards

- CardBus Ethernet 10/100
- CreditCard Ethernet 10/100
- 10/100+ Modem 56K

Additional Accessories

- Wireless Infrared Mouse
- Wireless Keyboard and Mouse
- Numeric Keypad
- USB Camera
- Monitor stand
- Presentation Audio system
- MindPath PocketPoint
- TeleAdapt 16' TeleCord
- Notebook Guardian Lock

Carrying Cases

- Diplomat
- Diplomat with Airpro
- Folio
- ProPack Backpack
- Executive Plus

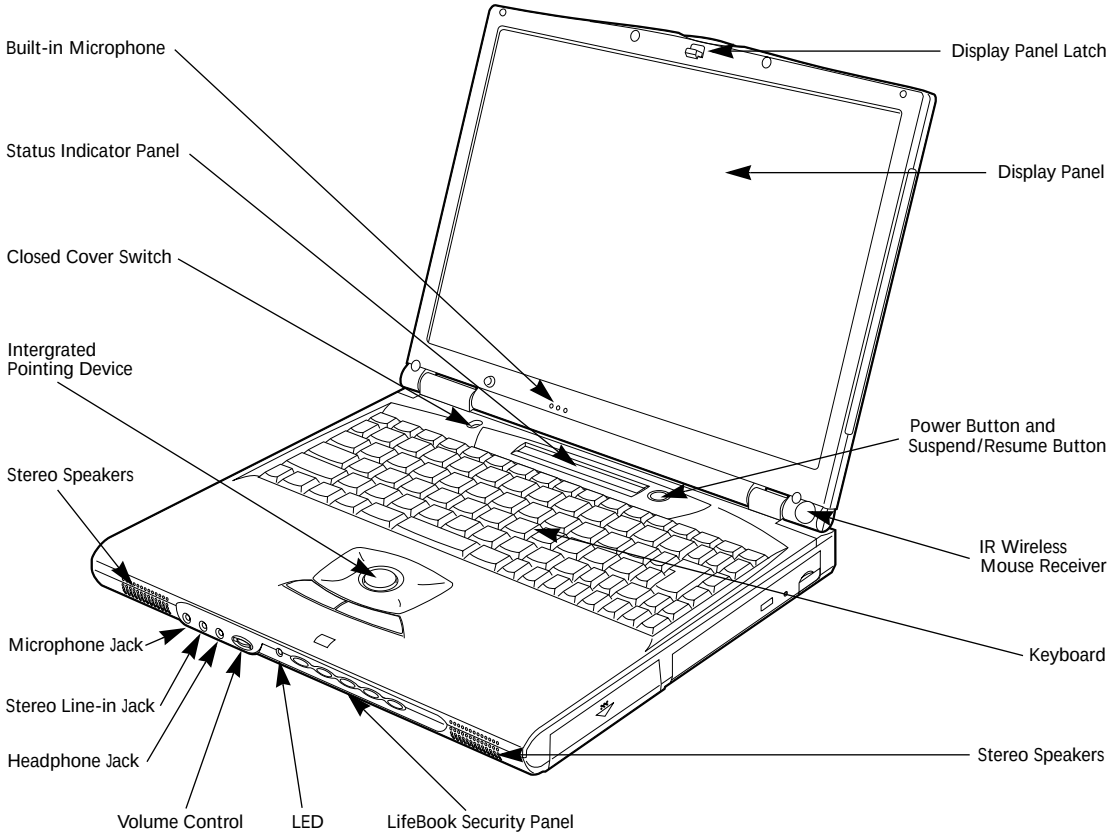


Figure 2-3 LifeBook E Series notebook with display open

Locating the Controls and Connectors

TOP AND FRONT COMPONENTS

The following is a brief description of your notebooks top and front components.

Display Panel Latch

The display panel latch locks and releases the display panel. *(Figure 2-3)*

Display Panel

The display panel is a color LCD panel with back lighting for the display of text and graphics. *(Figure 2-3)*

Built-in Microphone

The built-in microphone allows mono audio input. *(Figure 2-3)*

Status Indicator Panel

The Status Indicator Panel displays symbols that correspond with a specific component of your notebook. *(Figure 2-3) (See Status Indicator Panel on page 16 for more information)*

IR Wireless Mouse Receiver
The IR Wireless Mouse Receiver allows the use of an optional wireless IR Mouse. *(Figure 2-3)*

Power/Suspend/Resume Button
The Power button is always used to Power On your notebook from its Off state.It is also used as the Suspend/Resume button. The Suspend/Resume button allows you to suspend notebook activity without powering off, resume your notebook from suspend mode, and power on your notebook when it has been shut down from Windows 98. *(Figure 2-3) (See Power ON on page 41 for more information)* and *(See Power/Suspend/Resume Button on page 44 for more information)*

Stereo Speakers
The built-in dual speakers allow for stereo sound. *(Figure 2-3)*

Closed Cover Switch
The closed cover switch turns off the LCD back lighting when the display panel is closed. *(Figure 2-3)*

Keyboard
A full-size keyboard with dedicated Windows keys. *(Figure 2-3) (See Keyboard on page 19 for more information)*

Pointing Device
The pointing device is a mouse-like cursor control with two buttons. *(Figure 2-3) (See ErgoTrac Pointing Device on page 21 for more information)* and *(See Touchpad Pointing Device on page 23 for more information)*

LifeBook Security Application Panel
The LifeBook Security Application Panel provides hardware security and one-touch application launch capability.*(Figure 2-3) (See LifeBook Security Application Panel on page 29 for more information)*

Volume Control
The volume control provides manual control of the sound level of all audio output. *(Figure 2-3) (See Volume Control on page 25 for more information)*

Microphone Jack
The microphone jack allows you to connect an external mono microphone. *(Figure 2-3) (See Microphone Jack on page 68 for more information)*

Stereo Line-in Jack
The stereo line-in jack allows you to connect an external audio source. *(Figure 2-3) (See Stereo Line-In Jack on page 69 for more information)*

Headphone Jack
The headphone jack allows you to connect headphones or powered external speakers. *(Figure 2-3) (See Headphone Jack on page 69 for more information)*

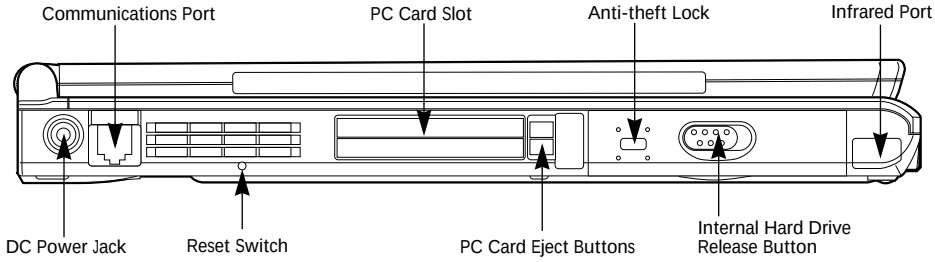


Figure 2-4 LifeBook E Series notebook left-side panel

LEFT-SIDE PANEL COMPONENTS

Following is a brief description of your notebooks left-side components.

DC Power Jack

The DC power jack allows you to plug in the AC adapter or the optional Auto/Airline adapter to power your notebook and charge the internal Lithium Ion Battery. *(Figure 2-4)*

Communications Port

The communications port may be configured with either a Modem (RJ-11) telephone jack for an internal 56K modem or an Internal LAN (RJ-45) jack for an internal Fast Ethernet (10/100 Base-T/Tx) port. *(Figure 2-4) (See Communications Port on page 67 for more information)*

CAUTION

The internal modem is designed to the ITU-T V.90 standard. Its maximum speed of 53000bps is the highest allowed by FCC, and its actual connection rate depends on the line conditions. The maximum speed is 33600bps at upload.

CAUTION

The internal modem is not intended for use with Digital PBX systems. Do not connect the internal modem to a digital PBX as it may cause serious damage to the internal modem or your entire notebook. Consult your PBX manufacturer's documentation for details. Some hotels have Digital PBX systems. Be sure to find out BEFORE you connect your modem.

CAUTION

The internal modem on all Fujitsu notebooks from Fujitsu PC Corporation are certified for use in the United States and Canada. The modem may be certified in other countries. Please access our Web site at www.8fujitsu.com for a list of the other world-wide locations where the internal modem has been certified.

Reset Switch

The reset switch allows you restart your notebook. *(Figure 2-4)*

PC Card Slots

The PC Card Slots allow you to install two Type II PC Cards or one Type III PC Card. *(Figure 2-4) (See PC Cards on page 63 for more information)*

Anti-theft Lock Slot

The anti-theft lock slot allows you to attach a optional physical lock down device. *(Figure 2-4)*

Internal Hard Drive Release Button

The internal hard drive release button allows you to remove the internal hard drive. The release button will not work if a Anti-theft lock is installed. *(Figure 2-4)*

Infrared Port

The fast IrDA compatible port allows you to communicate with another IrDA compatible infrared device without a cable. *(Figure 2-4)*

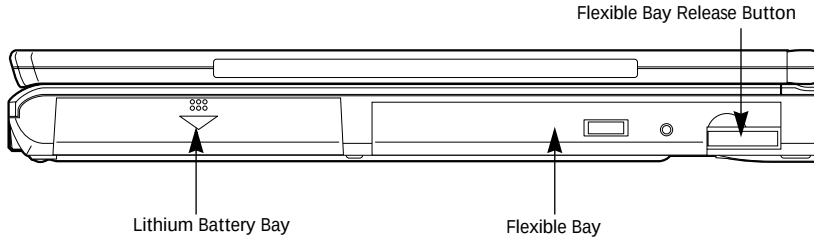


Figure 2-5 LifeBook E Series notebook right-side panel

RIGHT-SIDE PANEL COMPONENTS

Following is a brief description of your notebook's right-side components.

Lithium Ion Battery Bay

The battery bay contains the internal Lithium Ion battery. It can be opened for the removal of the battery when stored over a long period of time or for swapping a discharged battery with a charged Lithium Ion battery. *(Figure 2-5) (See Lithium Ion Battery on page 51 for more information)*

Flexible Bay Release Button

The Flexible Bay release button releases the Flexible Bay device. *(Figure 2-5)*

Flexible Bay

The Flexible Bay can accommodate one of the following devices. *(Figure 2-5) (See Flexible Bay Devices on page 26 for more information)*

- Modular 6x max DVD-ROM drive
- Modular 4x max CD-RW drive
- Modular 24x max CD-ROM drive
- Modular 3.5" floppy disk drive
- Modular SuperDisk 120
- Modular Lithium Ion battery
- Modular 10G hard disk drive

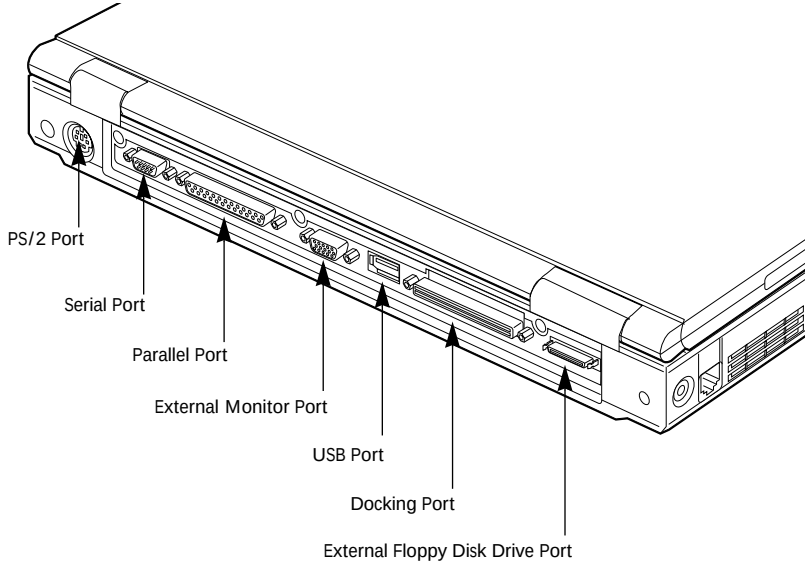


Figure 2-6 LifeBook E Series notebook rear panel

REAR PANEL COMPONENTS

Following is a brief description of your notebooks rear panel components.

PS/2 Port

The PS/2 port allows you to connect an external PS/2 keyboard, mouse or numeric keypad. *(Figure 2-6) (See PS/2 Port on page 67 for more information)*

Serial Port

The serial port allows you to connect serial (RS-232C) devices. (This is also sometimes referred to as a COMM port.) *(Figure 2-6) (See Serial Port on page 67 for more information)*

Parallel Port

The parallel port allows you to connect parallel devices. (This is also sometimes referred to as an LPT port.) *(Figure 2-6) (See Parallel Port on page 67 for more information)*

External Monitor Port

The external monitor port allows you to connect an external VGA or SVGA CRT monitor. *(Figure 2-6) (See External Monitor Port on page 69 for more information)*

USB Port

The USB port allows you to connect Universal Serial Bus devices. *(Figure 2-6) (See Universal Serial Bus Port on page 68 for more information)*

Docking Port

The docking port allows you to connect an optional port replicator or docking station. *(Figure 2-6) (See Docking Port on page 69 for more information)*

External Floppy Disk Drive Port

The external floppy disk drive port allows you to attach an optional external floppy disk drive. *(Figure 2-6) (See External Floppy Disk Drive Port on page 69 for more information)*

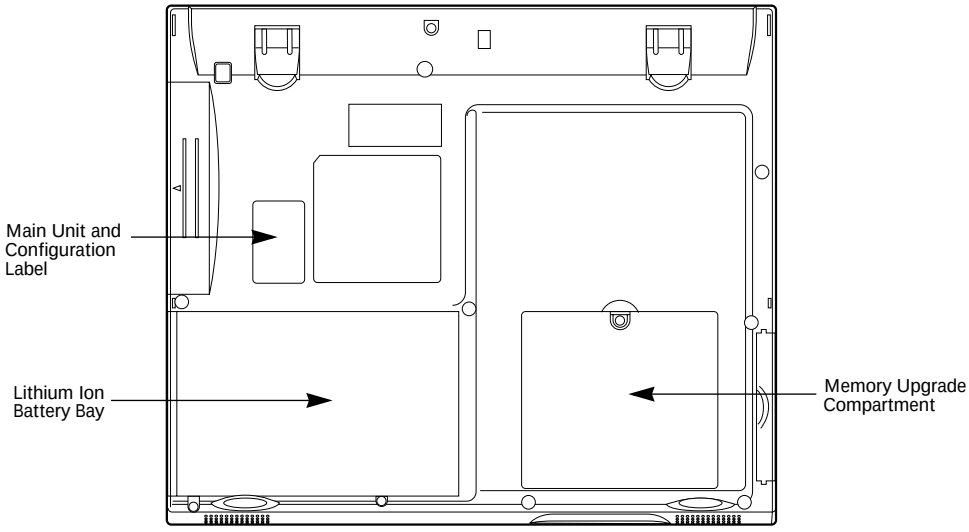


Figure 2-7 LifeBook E Series notebook bottom panel

BOTTOM COMPONENTS

Following is a brief description of your notebooks bottom panel components.

Main Unit and Configuration Label

The configuration label shows the model number and other information about your notebook. In addition, the configuration portion of the label has the serial number and manufacturer information that you will need to give your support representative. It identifies the exact version of various components of your notebook. *(Figure 2-7)*

Memory Upgrade Compartment

Your notebook comes with high speed Synchronous Dynamic RAM (SDRAM). The memory upgrade compartment allows you to expand the system memory capacity of your notebook, hence improving overall performance. *(Figure 2-7) (See Memory Upgrade Module on page 65 for more information)*

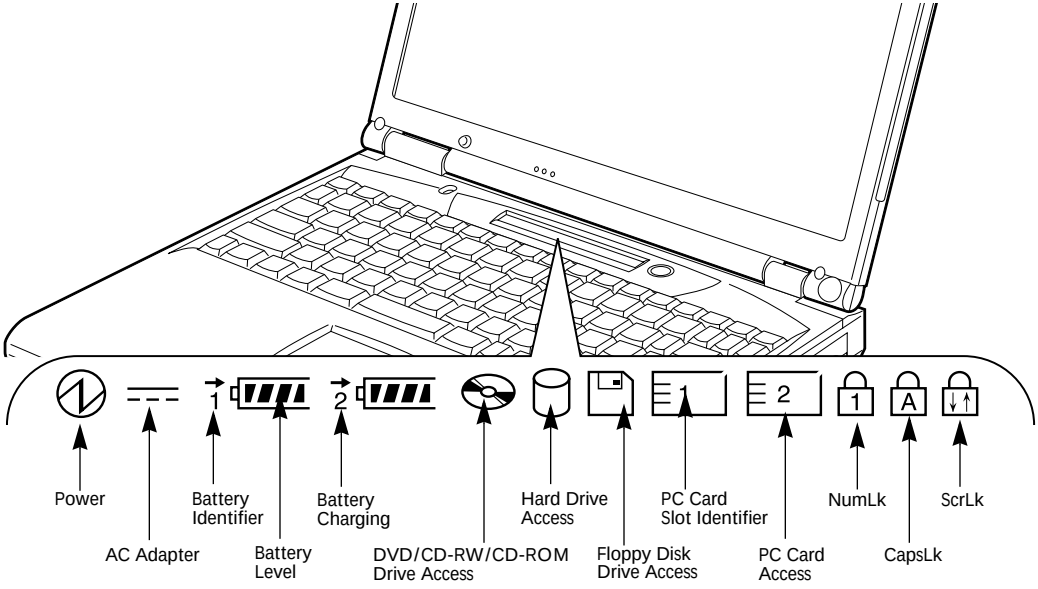


Figure 2-8 Status Indicator Panel

Status Indicator Panel

The Status Indicator panel is located in the recess just above your keyboard. Within this panel are symbols that correspond with a specific component of your LifeBook Series notebook. These symbols tell you how each of those components are operating. *(Figure 2-8)*

POWER INDICATOR

The Power indicator symbol states whether your system is operational. It has several different states, each of which tells you what mode your notebook is in at that time.

- Steady On: This means that there is power to your notebook and that it is ready for use.
- Flashing: This means that your notebook is in Suspend mode.
- Steady Off: This means that your system is either in Save-to-Disk mode, or that your notebook has been turned off with the power switch.

If you are charging your battery, the Power indicator symbol will remain on even if your notebook is shut off. The Power indicator symbol will also remain on if you have either adapter connected and are shut down from Windows, but have not turned off the power switch.

AC ADAPTER INDICATOR

The AC Adapter indicator states whether your notebook is operating from the AC adapter, the Auto/Airline adapter or the batteries. This icon has two different states that can tell you what power source your notebook is using.

- On: This means that either of the adapters are currently in use.
- Off: Power is only coming from the batteries, and you do not have an adapter connected.

BATTERY LEVEL INDICATORS

The two Battery Level indicators state whether or not the primary Lithium Ion battery and/or the optional second Lithium Ion battery are installed (Battery 1 refers to the primary Lithium Ion battery, while Battery 2 refers to the Flexible Bay optional second battery). In addition, this symbol states how much charge is available within each installed battery. The symbol will only be displayed for a battery that is currently installed in your notebook. *(Figure 2-9)*

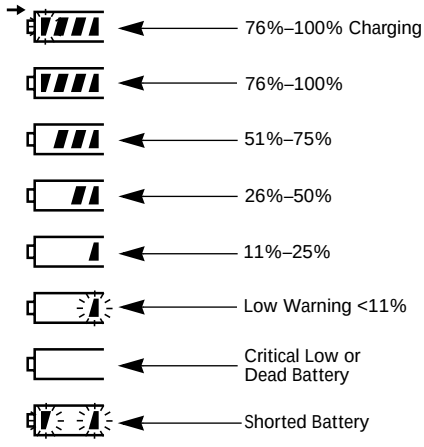


Figure 2-9 Battery Level Indicator

CAUTION

A shorted battery is damaged and must be replaced. *(Figure 2-9)*

POINT

If there is no battery activity, the power adapters are not connected, and the power switch is Off, the Battery Level indicators will also be off.

→ BATTERY CHARGING INDICATORS

Located to the left of each of the Battery Level indicators is a small arrow symbol. This symbol states whether that specific battery is charging. This indicator operates whether the power switch is in the On or Off position, and will flash if the battery is too hot or cold to charge.

CAUTION

Batteries subjected to shocks, vibration or extreme temperatures can be permanently damaged.

DVD/CD-RW/CD-ROM DRIVE ACCESS INDICATOR

The DVD/CD-RW/CD-ROM Access indicator tells you that the DVD/CD-RW/CD-ROM drive is being accessed. If the Automatic Insertion function is active, the indicator will flash periodically when your system is checking the DVD/CD-RW/CD-ROM drive. If the Automatic Insertion function is not active, the indicator will only flash when you access the DVD/CD-RW/CD-ROM drive. The default setting is the Automatic Insertion function active. *(See Automatic Insertion Function on page 60 for more information)*

POINT

The Windows 98 DVD/CD Automatic Insertion function will periodically check for a DVD/CD installed in the drive, causing the DVD/CD-ROM Access indicator to flash. The DVD/CD automatic insertion function allows your system to automatically start a DVD/CD as soon as it is inserted in the drive and the tray is closed. It will begin playing an audio DVD/CD or will start an application if the DVD/CD has an auto-run file. *(See Automatic Insertion Function on page 60 for more information)*

HARD DRIVE OR REMOVABLE MEDIA DRIVE ACCESS INDICATOR

The Hard Drive Access indicator states whether your internal hard drive or optional second hard drive is being accessed.

POINT

The Hard Drive Access indicator does not show which hard drive is being accessed.

FLOPPY DISK DRIVE ACCESS INDICATOR

The Floppy Disk Drive Access indicator states whether the floppy disk or SuperDisk drive is being accessed. This indicator will flash if your software tries to access a disk even if no floppy disk drive is installed. *(See SuperDisk™ 120 or Floppy Disk Drive on page 53 for more information)*

PC CARD ACCESS INDICATORS

The PC Card Access indicator(s) state whether or not your notebook is accessing a PC Card(s). The indicator will flash if your software tries to access a PC Card even if there is no card installed. The number inside the indicator refers to which PC Card slot is being accessed. *(See PC Cards on page 63 for more information)*

NUMLK INDICATOR

The NumLk indicator states that the internal keyboard is set in ten-key numeric keypad mode. *(See Keyboard on page 19 for more information)*

POINT

If you are using the optional external numerical keypad, pressing the [NumLk] key will activate the external keypad. The indicator will come on, however it will not change any of the functionality of your keyboard keys.

CAPSLOCK INDICATOR

The CapsLock indicator states that your keyboard is set to type in all capital letters. *(See Keyboard on page 19 for more information)*

SCRLK INDICATOR

The ScrLk indicator states that your scroll lock is active. *(See Keyboard on page 19 for more information)*

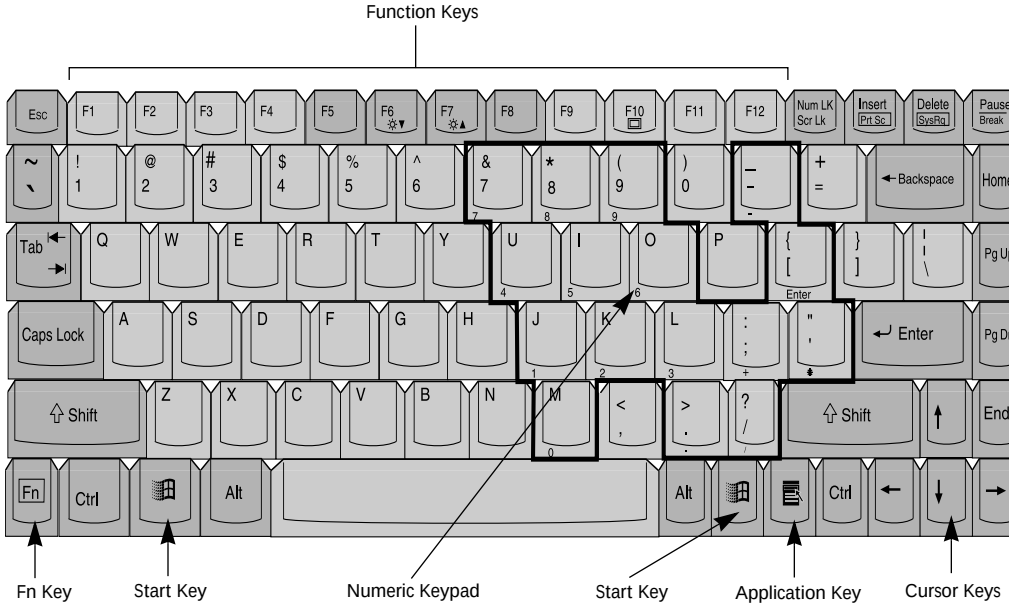


Figure 2-10 Keyboard

Keyboard

USING THE KEYBOARD

Your Fujitsu LifeBook Series notebook has an integral 87-key keyboard. The keys perform all the standard functions of a 101-key keyboard, including the Windows keys and other special function keys. This section describes the following keys. *(Figure 2-10)*

- Numeric keypad: Your notebook allows certain keys to serve dual purposes, both as standard characters and as numeric and mathematical keys. The ability to toggle between the standard character and numerical keys is controlled through the [NumLk] key.
- Cursor keys: Your keyboard contains four arrow keys for moving the cursor or insertion point to the right, left, up, or down within windows, applications and documents.
- Function keys: The keys labeled [F1] through [F12], are used in conjunction with the [FN] key to produce special actions that vary depending on what program is running.
- Windows keys: These keys work with your Windows operating system and function the same as the onscreen Start menu button, or the right button on your pointing device.

NUMERIC KEYPAD

Certain keys on the keyboard perform dual functions as both standard character keys and numeric keypad keys. NumLk can be activated by pressing the [NumLk] keys. Turning off the NumLk feature is done the same way. Once this feature is activated you can enter numerals 0 through 9, perform addition (+), subtraction (-), multiplication (*), or division (/), and enter decimal points (.) using the keys designated as ten-key function keys. The keys in the numeric keypad are marked on the front edge of the key to indicate their secondary functions.

POINT

If you are using the optional external numerical keypad, pressing the [NumLk] key will activate the external keypad. The indicator will come on, however it will not change any of the functionality of your keyboard keys

WINDOWS KEYS

Your notebook has three Windows keys, two Start keys and an Application key. The two Start keys display the Start menu. This button functions the same as your onscreen Start menu button. The Application key functions the same as your right mouse button and displays

shortcut menus for the selected item. (Please refer to your Windows documentation for additional information regarding the Windows keys.)

CURSOR KEYS

The cursor keys are the four arrow keys on the keyboard which allow you to move the cursor up, down, left and right in applications. In programs such as Windows Explorer, it moves the "focus" (selects the next item up, down, left, or right).

FUNCTION KEYS

Your notebook has 12 function keys, F1 through F12. The functions assigned to these keys differ for each application. You should refer to your software documentation to find out how these keys are used.

[FN] Key

The [FN] key provides extended functions for the notebook and is always used in conjunction with another key.

- [FN+F5]: Pressing [F5] while holding [FN] allows you to toggle between video compensation and no compensation. (Video compensation controls spacing on the display. When it is enabled, displays with less than 1024 x 768 or 800 x 600 pixel resolution will still cover the entire screen.)
- [FN+F6]: Pressing [F6] repeatedly while holding [FN] will lower the brightness of your display.
- [FN+F7]: Pressing [F7] repeatedly while holding [FN] will increase the brightness of the display.
- [FN+F10]: Pressing [F10] while holding [FN] allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are: built-in display panel only, both built-in display panel and external monitor or external monitor only.
- [FN+Suspend/Resume]: Pressing [Suspend/Resume] while holding [FN] activates the Save-to-Disk mode. *(See Power Management on page 44 for more information)*

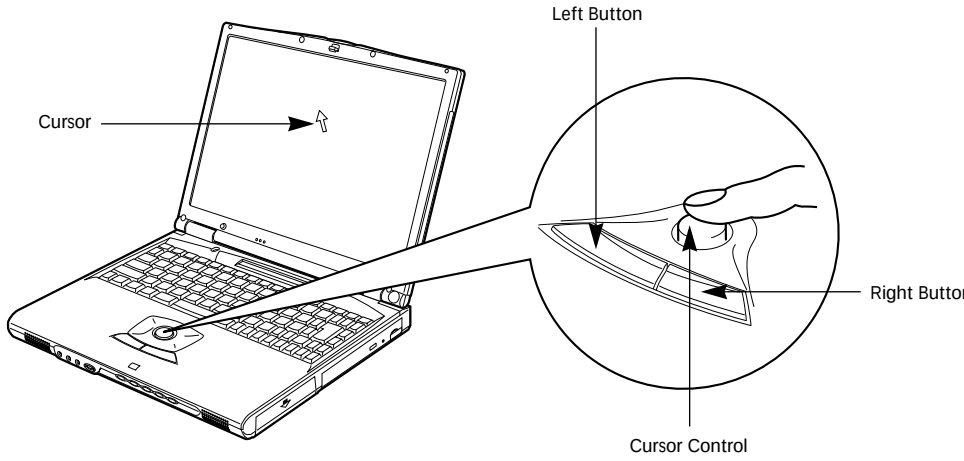


Figure 2-11 ErogTrac™ pointing device

ErgoTrac Pointing Device

The ErgoTrac pointing device is built into your Fujitsu LifeBook Series notebook. It is used to control the movement of the cursor to select items on your display panel. The ErgoTrac is composed of a cursor control and a left and right button. The cursor control works the same way a mouse does, and moves the cursor around the display. It only requires light pressure with the tip of your finger, and the more pressure you use, the faster the cursor will move. The left and right buttons function the same as mouse buttons. The actual functionality of the buttons may vary depending on the application that is being used. *(Figure 2-11)*

POINT

An external mouse can be connected to either the USB or PS/2 port on your notebook, and used simultaneously with the ErgoTrac. However, if you boot the system with an external mouse connected the ErgoTrac will be disabled or enabled depending on the specifications in your BIOS settings. Also, if the Infrared Mouse is enabled, your PS/2 external device will be disabled. *(See BIOS Setup Utility on page 41 for more information)*

CLICKING

Clicking means pushing and releasing a button. To left-click, move the cursor to the item you wish to select, press the left button once, and then immediately release it. To right-click, move the mouse cursor to the item you wish to select, press the right button once, and then immediately release it. *(Figure 2-12)*

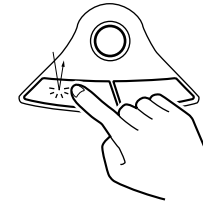


Figure 2-12 Clicking

DOUBLE-CLICKING

Double-clicking means pushing and releasing the left button twice in rapid succession. This procedure does not function with the right button. To double-click, move the cursor to the item you wish to select, press and release the left button twice. *(Figure 2-13)*

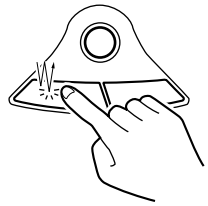


Figure 2-13 Double-clicking

POINT

If the interval between clicks is too long, double-clicking will not be executed.

POINT

Parameters for the ErgoTrac can be adjusted from the Mouse Properties dialog box located in the Windows Control Panel.

DRAGGING

Dragging means pressing and holding the left button, while moving the cursor. To drag, move the cursor to the item you wish to move. Press and hold the left button while moving the item to its new location and then release it.

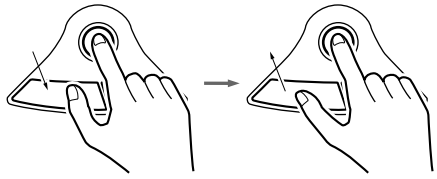


Figure 2-14 Dragging

ERGOTRAC CONTROL ADJUSTMENT

The Windows Control Panel allows you to customize your ErgoTrac with selections made from within the Mouse Properties dialog box. There are four aspects of the ErgoTrac operation which you can adjust:

- Buttons: This tab lets you set up the buttons for right or left handed operation, in addition to setting up the time interval allowed between clicks when double-clicking.
- Pointers: This tab lets you set up the scheme for the cursor depending on its functionality.
- Motion: This tab lets you set up a relation between the speed of your finger motion and the speed of the cursor. It also allows you to enable a Pointer Trail for the cursor arrow.
- General: This tab allows you to choose the type of mouse you are utilizing. Your notebook is setup to use the ErgoTrac pointing device. If you wish to use an external mouse you will need to change the settings.

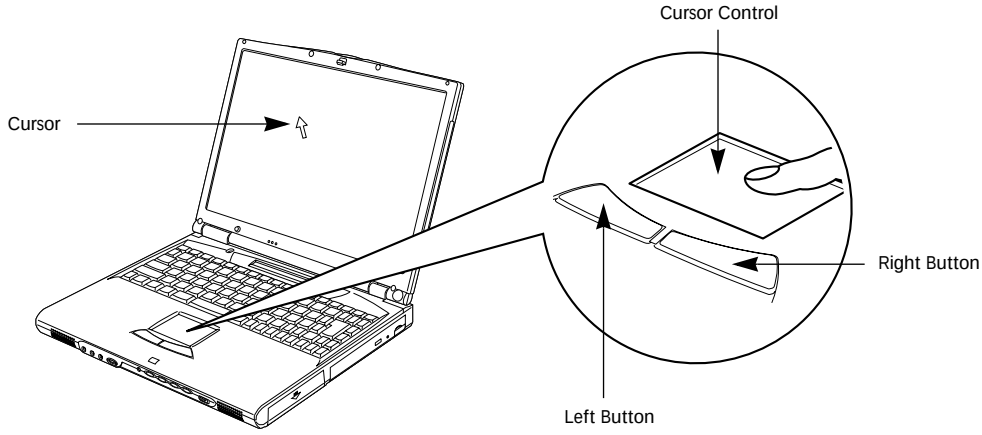


Figure 2-15 Touchpad pointing device

Touchpad Pointing Device

The Touchpad pointing device may come built into your Fujitsu LifeBook Series notebook. It is used to control the movement of the pointer to select items on your display panel. The Touchpad is composed of a cursor control and a left and right button. The cursor control works the same way a mouse does, and moves the cursor around the display. It only requires light pressure with the tip of your finger, and the more pressure you use, the faster the cursor will move. The left and right buttons function the same as mouse buttons. The actual functionality of the buttons may vary depending on the application that is being used. *(Figure 2-15)*

POINT

An external mouse can be connected to either the USB or PS/2 port on your notebook, and used simultaneously with the Touchpad. However, if you boot the system with an external mouse connected the Touchpad will be disabled or enabled depending on the specifications in your BIOS settings. Also, if the Infrared Mouse is enabled, your PS/2 external device will be disabled. *(See BIOS Setup Utility on page 41 for more information)*

CLICKING

Clicking means pushing and releasing a button. To left-click, move the cursor to the item you wish to select, press the left button once, and then immediately release it. To right-click, move the mouse cursor to the item you wish to select, press the right button once, and then immediately release it. You also have the option to perform the clicking operation by tapping lightly on the Touchpad once. *(Figure 2-16)*

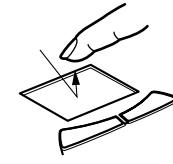


Figure 2-16 Clicking

DOUBLE-CLICKING

Double-clicking means pushing and releasing the left button twice in rapid succession. This procedure does not function with the right button. To double-click, move the cursor to the item you wish to select, press the left button twice, and then immediately release it. You also have the option to perform the double-click operation by tapping lightly on the Touchpad twice. *(Figure 2-17)*

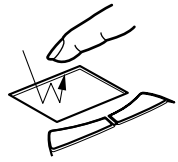


Figure 2-17 Double-clicking

POINT

If the interval between clicks is too long, the double-click will not be executed.

POINT

Parameters for the Touchpad can be adjusted from the Mouse Properties dialog box located in the Windows Control Panel.

DRAGGING

Dragging means pressing and holding the left button, while moving the cursor. To drag, move the cursor to the item you wish to move. Press and hold the left button while moving the item to its new location and then release it. Dragging can also be done using the Touchpad. First, tap the Touchpad twice over the item you wish to move making sure to leave your finger on the pad after the final tap. Next, move the object to its new location by moving your finger across the Touchpad, and then release your finger. *(Figure 2-18)*

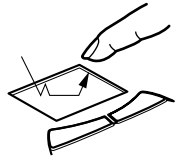


Figure 2-18 Dragging

TOUCHPAD CONTROL ADJUSTMENT

The Windows Control Panel allows you to customize your Touchpad with selections made from within the Mouse Properties dialog box. There are four aspects of Touchpad operation, which you can adjust:

- Buttons: This tab lets you set up the buttons for right or left handed operation, in addition to setting up the time interval allowed between clicks when double-clicking.
- Pointers: This tab lets you set up the scheme for the cursor depending on its functionality.
- Motion: This tab lets you set up a relation between the speed of your finger motion and the speed of the cursor. It also allows you to enable a Pointer Trail for the cursor arrow.
- General: This tab allows you to choose the type of mouse you are utilizing. Your notebook is setup to use the Touchpad pointing device. If you wish to use an external mouse you will need to change the settings.

Volume Control

Your Fujitsu LifeBook Series notebook has multiple volume controls which interact with each other.

CAUTION

Any software that contains audio files will also contain a volume control of its own. Both the main notebook volume control and the software volume control will interact with each other, but it should be noted that if you set your software volume to Off, you will override the main volume control setting and the software setting will control the maximum knob setting.

CONTROLLING THE VOLUME

There is the hardware volume control located on the notebook itself, and the volume control set from within the Volume Control on the Taskbar. In addition to those, there are also application volume controls that are set within each program individually.

Each source discussed above, puts an upper limit on the volume level that must then be followed by the other sources. For example:

- Your hardware volume control is all the way down, therefore your individual software application's volume control has no effect on the volume.

We recommend that you use the hardware volume controls to set the upper limit for the sound level and then make fine adjustments with the Volume Control on the Taskbar and individual application software.

SETTING THE HARDWARE VOLUME CONTROL

1. Turn the volume control knob to the right of your notebook to increase the volume.
2. Turn the volume control knob to the left to decrease the volume. *(See figure 2-3 on page 10 for location)*

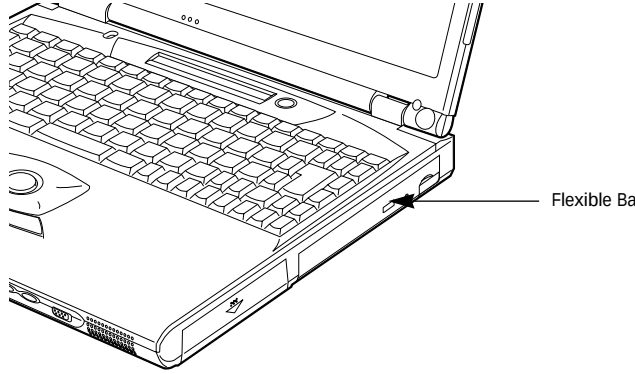


Figure 2-19 Flexible Bay

Flexible Bay Devices

Your Fujitsu LifeBook Series notebook contains a Flexible Bay. The Flexible Bay can accommodate a modular DVD drive, CD-ROM drive, CD-RW drive, floppy disk drive, SuperDisk drive, Lithium Ion battery, weight saver or additional hard drive. *(Figure 2-19)*

You Flexible Bay will have one of the following devices installed. All the devices listed here are also optional which can be purchased separately. *(Figure 2-20)*

- Modular DVD drive: This allows you to access movies, software and audio DVD/CDs.
- Modular CD-RW drive: This allows you access both software and audio CDs as well as the ability to write to CDs.
- Modular CD-ROM drive: This allows you access both software and audio CDs.
- Modular 3.5" floppy disk drive: This is a 3.5" drive with the ability to read and write information on removable 1.44MB and 720KB floppy disks.
- Modular SuperDisk drive: This is an optional 120MB floppy disk drive made by Imation, for use with your notebook.
- Modular Lithium Ion battery: This is a rechargeable battery that can be used to power your notebook when an adapter is not connected.
- Modular hard drive: This is an optional hard drive that can be used in conjunction with your internal hard drive for more storage capacity.
- Weight Saver: This is used to fill the bay when no device is needed.

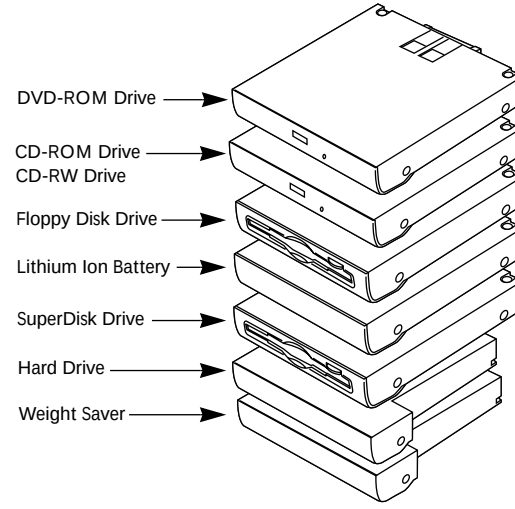


Figure 2-20 Flexible Bay Devices

REMOVING AND INSTALLING MODULAR DEVICES

There are three ways to remove and install modular devices in the Flexible Bay:

- Cold-swapping: swapping devices while your notebook is powered off.
- Warm-swapping: swapping devices while your notebook is in suspend mode.
- Hot-swapping: swapping devices while your system is active using BaySwap™ software.

WARNING

You should never leave your Flexible Bay empty when the notebook is in operation.

Cold-swapping

To cold-swap modular devices in your Flexible Bay follow these easy steps: *(Figure 2-21)*

1. Close any open files.
2. Shutdown your notebook.
3. Pull out the Flexible Bay release latch and then press the latch in to release the modular device. This will push your device out slightly allowing you to remove the device.
4. Slide your device out until it is clear of the bay. This will require light force.

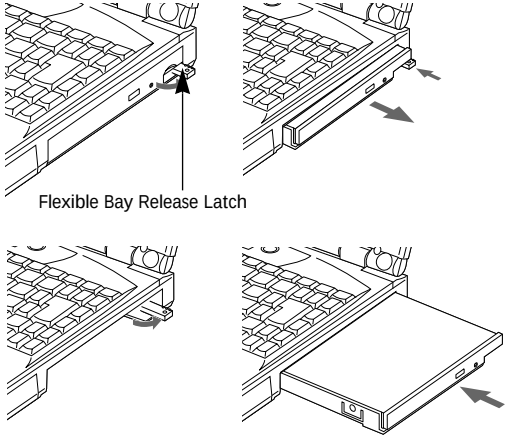


Figure 2-21 Removing/Installing a device in the Flexible Bay

CAUTION

Be careful aligning and seating devices in the bay. If the fit is incorrect, you may damage the bay or the device. If the device does not move easily in the bay, remove it, and check for dirt or foreign objects. It will require a firm push to latch the device in place.

5. Slide the device you are installing into your notebook until it clicks into place.
6. It is now safe to turn your notebook back on.
7. You can now access and use the device.

Your notebook will automatically detect the new device and activate it within your system. The drive letters associated with the device will be created and listed under My Computer and Windows Explorer.

Warm-swapping

To warm-swap devices in your Flexible Bay follow these easy steps: *(Figure 2-21)*

1. Close any open files.
2. Put your notebook into suspend mode
3. Pull out the Flexible Bay release latch and then press the latch in to release the device. This will push your device out slightly allowing you to remove the device.
4. Slide your device out until it is clear of the bay. This will require light force.
5. Swap the modular device.
6. Press the Suspend/Resume button to return your notebook to normal operation. You can now access and use the device.

Your notebook will automatically detect the new device and activate it within your system. The drive letters associated with the device will be created and listed under My Computer and Windows Explorer.

Hot-swapping

BaySwap™ is a unique Phoenix® application that provides a simple and powerful method of switching modular devices on your notebook without having to reboot. Windows 98 do not natively support hot-swapping. With BaySwap, you can swap modular devices while your O/S is running, this is called hot-swapping.

Using BaySwap

It's easy to swap modular devices on your notebook using BaySwap. To hot-swap modular devices follow these easy steps:

1. Point your mouse on the BaySwap icon on the Windows Taskbar in the lower right corner of your screen.
2. Click the left mouse button to change devices in the Flexible Bay.

POINT

Devices are protected from being removed while the OS is using it. If the device is in use, an Error Message window pops up and requests you to close any open files. Close any open files and restart procedure at step #1.

3. A message appears telling you that it is safe to swap devices.
4. Swap the modular devices.
5. Click **OK** button.
6. You can now access and use the device.

Your notebook will automatically detect the new device and activate it within your system. The drive letters associated with the device will be created and listed under My Computer and Windows Explorer.

WARNING

Your SuperDisk 120 drive does not support warm-, or hot-swapping. You must cold-swap in order to use your SuperDisk 120 drive.

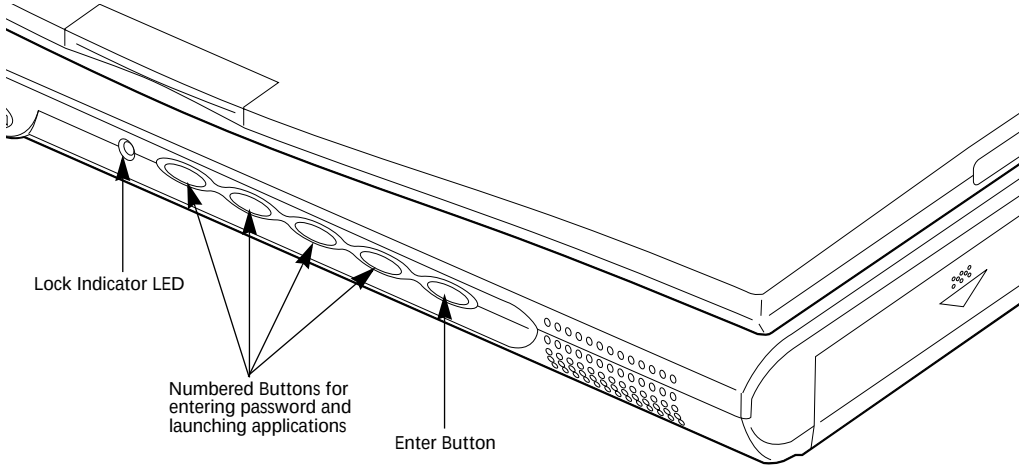


Figure 2-22 LifeBook Series Security Application Panel

LifeBook Security Application Panel

A unique feature of your LifeBook Series notebook is the Security Application Panel that allows you to secure your notebook from unauthorized use. The Security Application Panel also allows you to launch applications with a touch of a button when your system is on.

If the security system is activated, upon starting your notebook or resuming from suspend mode the security system requires you to enter a password code using the buttons on the Security Application Panel. After entering a correct password, your notebook resumes system operation. *(Figure 2-22)*

SETUP YOUR LIFEBOOK SECURITY PANEL

When you receive your LifeBook, the security panel application is pre-installed without any passwords. The following sections will provide detailed information on your security panel, how to set, change or remove passwords.

Numbered Buttons

Use these buttons to enter your password.*(Figure 2-22)*

Enter Button

After entering the button strokes, push this button to enter the password into the notebook. *(Figure 2-22)*

PASSWORDS

The user and supervisor password may be set on this notebook. A supervisor password is typically the same for all notebooks in a working group, office, or company to allow for system management. Individual notebooks in a group environment should not use a common password. A password consists of one to five button strokes plus the enter button. A valid stroke consists of pushing one or up to four buttons simultaneously. The following are valid button strokes:

- Pushing [4] by itself
- Pushing [2] and [3] at the same time
- Pushing [1], [2], and [4] at the same time
- Pushing [1], [2], [3], and [4] at the same time

The following are valid passwords. The numbers within braces ({ }) are button strokes using more than one button.

- {[2]+[3]}, [1], [enter]
- [4], [enter]
- {[1]+[3]}, {[2]+[3]+[4]}, [1], [4], [2], [enter]

Setting Passwords

When shipped from the factory, no passwords are set. You have a choice of setting no password or supervisor and user password. Once a password is set, the notebook requires the password whenever turning on the notebook or resuming from a suspend state. When setting two passwords, the supervisor password is set before the user password. When setting only one password, it has to be the supervisor password.

POINT

You have to set both the supervisor and user passwords for the security panel to work.

Setting Supervisor Password

You must have set a supervisor password prior to setting any user passwords. The supervisor password can bypass the user password.

1. Go to the **Start** menu.
2. Click on **Run**.
3. Type in `FJSECS.exe`, then press [Enter]
4. Follow the on-screen instructions to set the Supervisor password.

Setting User Password

1 Go to the **Start** menu.
2. Click on **Programs**.
3. Click on **Security Panel Application** and **Set User Password**.
4. Follow the on-screen instructions to set the User password.

POINT

You may change or remove the supervisor or user password by repeating the steps defined above.

OPERATING YOUR LIFEBOOK SECURITY APPLICATION PANEL

The security lock feature is in effect both when the system resumes from OFF or suspend state. You would always need to push the suspend /resume key to input the user password. Your system would not begin the boot sequence without entering your supervisor/user Password

From Off State

1. Turn on your system.
2. When lock lamp lights up, enter the password and press [Enter].
   For example, if the password is 22222,
   Press Button Number 2 five times and press [Enter].
3. The notebook will boot to normal operation.

From Suspend State

1. Press your Suspend/Resume button.
2. When lock lamp lights up, enter the password and press [Enter].
3. The notebook should resume normal operation.

Incorrect Password Entry

If an invalid supervisor or user password is entered three times in succession, the system will "beep" for about 1 minute. If a valid password is entered within a minute (while system beeps), the beeping will stop and the notebook will resume normal operation. If no or invalid password is entered while the system beeps, the system will return to it's previous locked state (suspend or off) and the Lock lamp will go off. To reactivate the notebook after a password failure, you must press the Suspend/Resume button, then enter a correct password.

WARNING

Remember the user password you specified on the Security Panel Application. If you forget the password you will not be able to use your computer. The supervisor password can override the user password.

Ring Wake-up, Wake-on-LAN, and Timer Resume

Your notebook may be set to wake-up when receiving a telephone call (if attached to a modem and telephone line), signal from a LAN, or at a designated time. To enable these functions refer to your User's Guide.

This security function can work only after pushing suspend/resume button. When the system wakes up by Ring Wake-up, Wake-ON-LAN, and Timer resume function, the security function does not work.

UNINSTALLING THE SECURITY APPLICATION PANEL

You have two options when uninstalling the security panel application:

- Uninstall the security panel application software. This will disable all security feature.
- Uninstall the security panel application with password still active. This will not allow any changes to the password.

Uninstall The Security Panel Application Software

Remove passwords when User wants no password protection whatsoever and doesn't want to give anybody the tool to set a password on their computer. In this case, if passwords (supervisor, user, or both) are set, the passwords must first be cleared BEFORE removing the application. To clear passwords, follow same procedure in SETTING PASSWORD CODES except this time, select REMOVE, enter current password then click next. When asked to confirm say YES.

Removing Security Panel Application with Passwords Still Active

Using this feature will not allow any changes to the password.

POINT

Removing the applications does not remove the password. It simply removes the tool to change/add/remove passwords. To change your password you must reinstall the application.

User:

1. Go to **Start** Menu, Click on **Control Panel**.
2. Open **Add/Remove Programs Properties** in the Control Panel.
3. Select the **Security Panel Application** in the list, and click **Add/Remove**.
4. When the Confirm File Deletion box appears, click **Yes**.

Supervisor:

1. Go to **Start** Menu, Click on **Control Panel**.
2. Open **Add/Remove Programs Properties** in the Control Panel.
3. Select the **Security Panel Application for Supervisor** in the list, and click **Add/Remove**.
4. When the Confirm File Deletion box appears, click **Yes**.

Reinstall The Security Application Panel

To reinstall supervisor or user security application, You will need your Drivers and Utilities CD. There is a folder named **Secpanel** which contains the setup files for supervisor and user security application. Double-click on setup*.exe and follow these instructions.

1. Double-click the **Setup FJSECS.EXE** file. The Installing Security Panel Application window will appear. Follow the instructions on the screen.
2. Double-click the **Setup FJSECU.EXE** file. The Installing Security Panel Application window will appear. Follow the instructions on the screen.
3. Supervisor and user passwords can be set by the Windows Software which are FJSECS.EXE and FJSECU.exe respectively. FJSECU.EXE for user password cannot run without supervisor password. First you need to run FJSECS.exe to set supervisor password before setting user password. Follow instructions under Settings Passwords.

If you forget both passwords, please contact Fujitsu PC Corporation Service and Support at 1-800-8fujitsu. Fujitsu PC Corporation charges a service fee for unlocking a password restricted notebook. When calling please have a valid credit card and provide proof of ownership. You will then be given instructions on where to ship you notebook.

LAUNCHING APPLICATIONS WITH THE SECURITY APPLICATION PANEL

The security panel also enables you to launch applications with the touch of a button when your system is on. Your notebook is pre-installed with software utilities that let you operate and configure your LifeBook Security Panel. These utilities are found under the Start menu, under Programs, then under LifeBook Application Panel. They include Application Panel Setup, Application Panel Guide, Activate Panel and Deactivate Panel.

Application Panel Buttons

Application Launcher Buttons

Pressing any of the buttons will launch a user-defined application.

Configuring your LifeBook Application Panel

When you start Windows 98, the LifeBook Application Panel is automatically activated. An icon resembling a finger pressing a button will appear on the system tray (the indented portion of the status bar where the clock is displayed). When you see this icon you will know that LifeBook Application Panel is active.

As an application launcher, the LifeBook Application Panel is very flexible, giving you a variety of options. To set up the Panel to best suit your needs, we have provided the Application Panel Setup, utility that quickly and easily helps you make the most of this valuable feature.

To configure your LifeBook Application Panel with Application Panel Setup:

1. Click on **Start**.
2. Click on **Programs**.
3. Click on **LifeBook Application Panel**.
4. Click on **Application Panel Setup**.

The Application Panel Setup utility will appear. There are tabs that correspond to the application buttons on the LifeBook Application Panel. When you receive your notebook, these buttons are pre-configured to launch the following programs:

- Application 1 – Notepad
- Application 2 – Calculator
- Application 3 – Internet Explorer 5.0
- Application 4 – Netscape Messenger

POINT

The tabs in Application Panel Setup may not be in the same order as the buttons on your LifeBook, please select the tab you wish to change carefully.

To change an application associated with the Application buttons, click on the tab for the button you would like to reconfigure – for example, Application 1. Click on Browse from Start Menu, scroll down the list of applications, click on the application you wish to launch with this button, and then click OK. The button will now launch the new application.

The Internet tab is different. It comes set to launch your Windows 98 default Internet browser, (Internet Explorer, unless you have changed this in Windows 98.) In order to reconfigure it to launch another program follow these easy steps:

1. Click on **Other** from the Internet browser box.
2. Click on **Browse** from Start Menu.
3. Scroll down the list of applications, and the click on the application you wish to launch with this button.
4. Click **OK**.

The button will now launch the new application. If you want to return to launching your Windows 98 default Internet browser with this button, you need only click on "Default Internet Browser" from the Internet browser box. Be aware that you will erase the settings for the "other application". If you wish to go back to launching the "other application" from this button, you will need to reconfigure it as described above.

POINT

The Internet or E-mail buttons can be configured to launch any application you wish, not just an Internet browser or e-mail program.

POINT

If you choose to have the buttons work when the notebook is in standby or pseudo-off, they will function even if hit accidentally, and will turn on your notebook even if you are not present or using your notebook. This could deplete your battery, and you will need to recharge it before using the notebook. As a precaution, move the selector switch to the Lock position when you are away from your notebook.

When you have finished with Application Panel Setup click on OK, and the new settings will take effect. You can reconfigure your LifeBook Application Panel as often as you like.

Deactivating and Activating the LifeBook Application Panel

To deactivate the LifeBook Application Panel, follow these easy steps:

1. Click on **Start**.
2. Click on **Programs**.
3. Click on **LifeBook Application Panel**.
4. Click on **Deactivate Panel**.

To reactivate, follow the same procedure, except for step 4. Click on **Activate Panel** instead.

POINT

Every time you start Windows 98 the LifeBook Application Panel is activated. Even if you deactivated it before you shut down.

Pre-Installed Software

Your Fujitsu LifeBook Series notebook comes with pre-installed software for playing audio and video files of various formats. In addition there is file transfer software, virus protection software and Power Management software.

LEARNING ABOUT YOUR APPLICATION SOFTWARE

Tutorials

All operating systems and most application software have tutorials built-into them upon installation. We highly recommend that you step through the tutorial before you use an application.

Manuals

Included with your notebook you will find manuals for your installed operating system and other pre-installed software. Any manuals that are not included, are available online through the help system of the software. We recommend that you review these manuals for general information on the use of these applications.

PC DOCTOR

PC Doctor by Watergate Software is primarily for use by your support representative when assisting you with troubleshooting.

LAPLINK PROFESSIONAL

LapLink Professional by Traveling Software®, allows you to transfer files directly to other computers via an internal modem, a PC Card modem, the infrared port, the USB port, or a serial or parallel cable (cables not included). *(See your LapLink online help for proper operating procedures)*

MCAFEE VIRUSSCAN

VirusScan, by McAfee, is an antivirus program that can be run after loading data or programs onto your notebook. It assist in the protection of the data currently residing on your hard disk from contamination and destruction. *(See your VirusScan online help or manual for more information on how and when to run this program)*

PMSET 98

PMSet 98 allows you to monitor and manage your battery status. *(See your PMSet 98 online help for more information on the correct way to use this program)*

POINT

As your notebook does not support the CPU Clock control, the option is not active within the Power Control menu of PMSet 98.

ADOBE ACROBAT READER

The Adobe Acrobat Reader, located in the Service and Support Software folder, allows you to view, navigate, and print PDF files from across all of the major computing platforms.

ESS AUDIORACK 32

ESS AudioRack functions as a Digital Audio Tape (DAT) player, a MIDI player, a Mixer and finally as an audio CD player. The controls used within the AudioRack player software (AudioRack32) resembles the front panels of a rack of stereo equipment and is operated in much the same way. If you left-click on a button it will activate and its button on the AudioDrive panel will display a green dot and a control panel will appear on the screen. When you deactivate the button, the dot will change to black and the control panel will disappear. You activate a slider or knob on a control panel by dragging it.

POINT

For maximum frequency response and bandwidth, leave the graphic equalizer levels at the mid-point (zero level). To customize the frequency response to your personal taste, adjust accordingly.

CAUTION

The ESS AudioRack volume settings set the maximum volume level of the hardware volume control for that function. *(See Volume Control on page 25 for more information on setting the maximum level)*

LIFEBOOK SECURITY APPLICATION PANEL SOFTWARE

LifeBook Security Panel allows you to secure your notebook from unauthorized use. If the security system is activated, upon starting your notebook or resuming from suspend mode the security system requires you to enter a password code using the buttons on the 5-button Security Panel. After entering a correct password, your notebook resumes system operation.

LIFEBOOK APPLICATION PANEL SOFTWARE

Your notebook is pre-installed with software utilities that let you operate and configure your LifeBook Application Panel. These utilities are found under the Start menu, under Programs, then under LifeBook Application Panel. They include a CD Player, Application Panel Setup. Application Panel Guide, Activate Panel and Deactivate Panel.

BAYSWAP

BaySwap is a unique Phoenix application that provides a simple and powerful method of switching drives of a notebook computer without having to reboot the notebook computer. Windows 98 do not natively support hot swapping. With BaySwap, you can swap bay devices while your O/S is running, this is called hot-swapping.

BaySwap Features

- Allows hot-swapping of devices on notebook. You do not need to shut down the system to exchange devices.
- Works under Windows 98.
- Works under ACPI and APM seamlessly.
- Provides power management integrity for devices that enter and leave the system.

POINT

You have Convenience without compromising battery life.

- Supplies password protection upon inserting and ejecting a device. Upon ejection, a password is required to prevent the theft of devices.
- Lets you customize preference, such as notification preferences and password.

Section Three
Getting Started

Power Sources
Connecting the Power Adapters 39

Display Panel
Opening the Display Panel 40
Adjusting Display Panel Brightness 40
Closing the Display Panel 40

Starting Your LifeBook
Power On 41
Boot Sequence 41
BIOS Setup Utility 41
Booting the System with Windows 98 42
Registering Your LifeBook 43

Power Management
Power/Suspend/Resume Button 44
Suspend Mode 44
Save-to-Disk Mode 44
Idle Mode 46
Standby Mode 46
Display Timeout 46
Hard Disk Timeout 46
Windows 98 Power Management 46
Restarting the System 47
Power Off 47

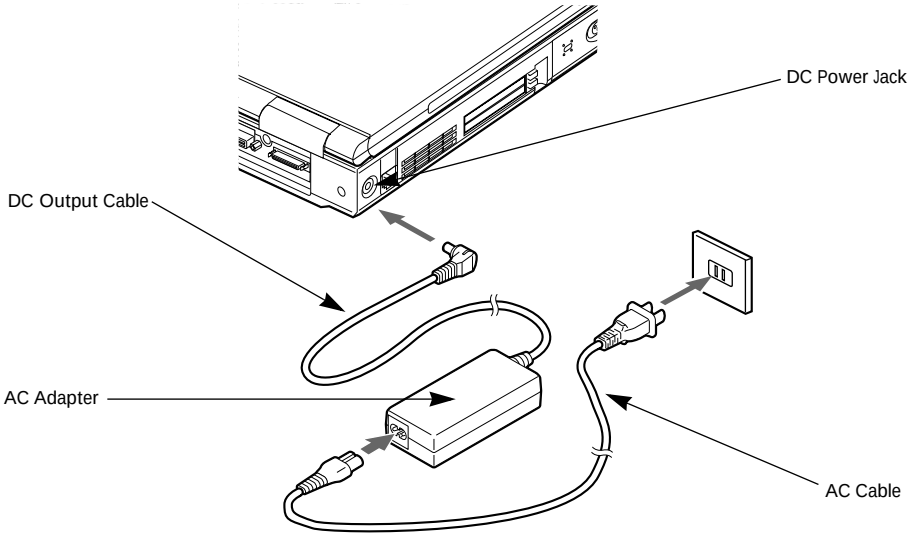


Figure 3-1 Connecting the AC Adapter

Power Sources

Your Fujitsu Series LifeBook notebook has three possible power sources: a primary Lithium Ion battery, an AC adapter or an optional Auto/Airline adapter.

CONNECTING THE POWER ADAPTERS

The AC adapter or optional Auto/Airline adapter provides power for operating your notebook and charging the batteries.

Connecting the AC Adapter

1. Plug the DC output cable into the DC power jack of your notebook.
2. Plug the AC adapter into an AC electrical outlet. *(Figure 3-1)*

Connecting the Optional Auto/Airline Adapter

1. Plug the DC output cable into the DC power jack on your notebook.
2. Plug the Auto/Airline adapter into the cigarette lighter of an automobile with the ignition key in the On or Accessories position.

   OR
3. Plug the Auto/Airline adapter into the DC power jack on an airplane seat.

Switching from AC Adapter Power or the Auto/Airline Adapter to Battery Power

1. Be sure that you have at least one charged battery installed.
2. Remove the AC adapter or the Auto/Airline adapter.

CAUTION

The Lithium Ion battery is not charged upon purchase. Initially, you will need to connect either the AC adapter or the Auto/Airline adapter to use your notebook.

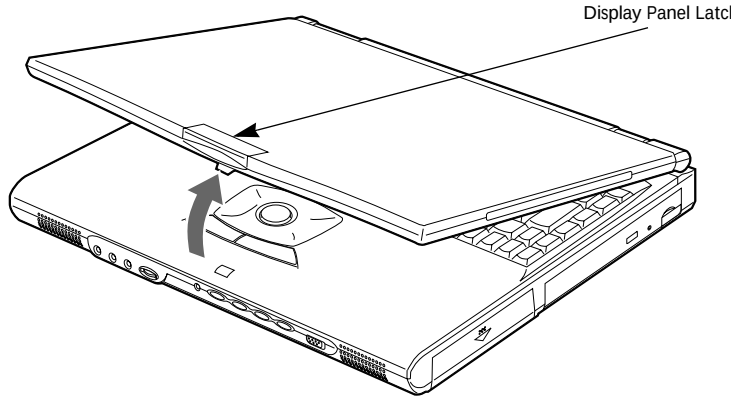


Figure 3-2 Opening the Display Panel

Display Panel

Your Fujitsu LifeBook Series notebook contains a display panel that is backlit for easier viewing in bright environments and maintains top resolution through the use of active-matrix technology.

OPENING THE DISPLAY PANEL

1. Press the latch located at the top of the display panel. This releases the locking mechanism and raises the display slightly.
2. Lift the display backwards, being careful not to touch the screen, until it is at a comfortable viewing angle. *(Figure 3-2)*

ADJUSTING DISPLAY PANEL BRIGHTNESS

Once you have turned on your notebook, you may want to adjust the brightness level of the screen to a more comfortable viewing level. There are two ways to adjust the brightness keyboard and power management utility

Keyboard

- [FN+F6]: Pressing repeatedly will lower the brightness of your display.
- [FN+F7]: Pressing repeatedly will increase the brightness of the display.

POINT

If using AC power your brightness setting is set to it's highest level by default. If using battery power your brightness settings is set to it's lowest level by default.

Power Management Utility

1. Double-click on the PMSet icon in the lower right corner of your display.
2. Slide the brightness control bar to the right to increase brightness or left to decrease brightness.

You may need to readjust the brightness level periodically depending on your operating environment.

POINT

The higher the brightness level, the more power the notebook will consume and the faster your batteries will discharge. For maximum battery life, make sure that the brightness is set as low as possible.

CLOSING THE DISPLAY PANEL

1. Holding the edge of your display panel, pull it forward until it is flush with the body of your notebook.
2. Push down until you hear a click. This will engage the locking mechanism and prevent your display panel from opening unexpectedly.

Starting Your LifeBook

POWER ON

Power/Suspend/Resume Button

The Power/Suspend/Resume button is used to power on your notebook, to resume from Standby or Save-to-Disk mode, to place your notebook in Standby or Save-to-Disk mode or to power off. You can also turn off your notebook by choosing **Shut Down** from the Windows 98 Start menu.

Once you have connected your AC adapter or charged the internal Lithium Ion Battery, you can press this button to Power On your notebook. *(See figure 2-3 on page 10 for location)*

CAUTION

When you turn on your notebook be sure you have a power source. This means that at least one battery is installed and charged, or that the AC or Auto/Airline adapter is connected and has power.

CAUTION

Do not carry your notebook around with the power on or subject it to shocks or vibration, as you risk damaging your notebook.

When you Power On your notebook, it will perform a Power On Self Test (POST) to check the internal parts and configuration for correct functionality. If a fault is found, your notebook will emit an audio warning and/or an error message will be displayed. *(See Power On Self Test Messages on page 83 for more information)* Depending on the nature of the problem, you may be able to continue by starting the operating system or by entering the BIOS setup utility and revising the settings.

After satisfactory completion of the Power On Self Test (POST), your notebook will load your operating system.

CAUTION

Never turn off your notebook during the Power On Self Test (POST) or it will cause an error message to be displayed when you turn your notebook on the next time. *(See Power On Self Test Messages on page 83 for more information)*

BOOT SEQUENCE

The procedure for starting-up your Fujitsu LifeBook Series notebook is termed the Bootup sequence and involves your notebook's BIOS. When your notebook is first turned on, the main system memory is empty, and it needs to find instructions to start up your notebook. This information is in the BIOS program. Each time you power up or restart your notebook, it goes through a boot sequence which displays a Fujitsu logo until your operating system is loaded. During booting, your notebook is performing a standard boot sequence including a Power On Self Test (POST). When the boot sequence is completed without a failure and without a request for the BIOS Setup Utility, the system displays the operating system's opening screen.

The boot sequence is executed when:

- You turn on the power to your notebook.
- You restart your notebook from the Windows Shut Down dialog box.
- The software initiates a system restart. Example: When you install a new application.
- You reset the system by pressing the three keys [CTRL+ALT+DEL].

BIOS SETUP UTILITY

The BIOS Setup Utility is a program that sets up the operating environment for your notebook. Your BIOS is set at the factory for normal operating conditions, therefore there is no need to set or change the BIOS' environment to operate your notebook.

The BIOS Setup Utility configures:

- Device control feature parameters, such as changing I/O addresses and boot devices.
- System Data Security feature parameters, such as passwords.

Entering the BIOS Setup Utility

To enter the BIOS Setup Utility do the following:

1. Turn on or restart your notebook.
2. Press the [F2] key once the Fujitsu logo appears on the screen. This will open the main menu of the BIOS Setup Utility with the current settings displayed.
3. Press the [RIGHT ARROW] or [LEFT ARROW] key to scroll through the other setup menus to review or alter the current settings.

BIOS Guide

A guide to your notebook's BIOS is available online. Please visit our service and support Web site at www.8fujitsu.com. Once there, click on the Self Help Center link, and select your notebook series from the pull-down menu. Once you have done that, select the heading BIOS Guides from the pull-down menu and finally, select your specific unit's BIOS number. If you are unsure of your notebook's BIOS number, please refer to your packing slip.

POINT

If your data security settings require it, you may be asked for a password before the BIOS main menu will appear.

BOOTING THE SYSTEM WITH WINDOWS 98

We strongly recommend that you not attach any external devices and do not put a DVD/CD or floppy disk in any drive until you have gone through the initial power on sequence.

When you turn on your notebook for the first time, it will display a Fujitsu logo on the screen. If you do nothing the system will read the hard drive for the operating system software, flash the notebook configuration information on the screen, and then the Windows 98 Welcome will begin.

Designed to accommodate the needs of many users, in many different countries, Windows 98 needs to be configured the first time you use it. Windows 98 has three parts:

- Getting Started: You have the opportunity to enter custom information for your configuration file and setup your modem so that your notebook will be prepared to dial out.
- Registration: Easy online registration for Windows 98 with Microsoft, and for your LifeBook Series notebook with Fujitsu PC Corporation.
- Windows License Agreement and Final Settings: You have the opportunity to review the Windows 98 License Agreement and then your configuration file will be generated

POINT

You may click Cancel at any time within this process to shutdown Windows 98. You may restart this process at any time in the future, but you must complete it in order to use your computer.

Getting Started

Read the instructions on the screens carefully and fill in the information as directed. You will be asked for such items as the language you wish to use, the country in which you live, your first and last name, and about how you dial out from where you will be using your notebook. For the modem settings, enter your current location information where you will be using your notebook. If you are not connected to a phone line and plan to register at a later time, you may click the **Skip** button, and you will go directly to the condition of use page.

Once you have setup your notebook to dial out, Windows 98 will make a free telephone call which will test these settings. If the call is unsuccessful, you will be returned to the phone settings page where you may try to fix them. If you are unable to fix the settings please contact Fujitsu PC Service and Support. *(See Fujitsu PC Contact Information on page 3 for more information)* If you would simply like to move on, and register at a later time, you may click the **Skip** button, and you will go directly to the Condition of Use page.

Registration

If your connection is successful, you will go to the Registration Confirmation page. On this page simply enter the requested information, and then check the box at the bottom to register your copy of Windows 98 with Microsoft. Once you have finished, click the **Next** button to continue.

POINT

If you do not register at this time you can do it later simply by double-clicking on the **LifeBook Registration** icon on your desktop and following the instructions.

You will then go through the Fujitsu registration process. Follow the instructions on the screens, and enter all of the necessary information. Be as specific as possible so that if you need help the service and support team will be able to serve you better.

Final Settings

The first part of your final settings is the Windows End User License Agreement. Read the agreement carefully. When you finish reading you must accept or reject the terms of the agreement and then click on the **Next** button.

POINT

If you reject the terms of the license agreement you will be asked to review the license agreement for information on returning Windows 98 or to shut down you notebook.

Next, you will need to enter your Windows Product Key. The Product Key is located on the Windows 98 Certificate of Authenticity with the Windows 98 User's manual. On the certificate you will find a bar-code with a number above it. This is your product key and the number you need to enter on the Product Key screen. When you have entered the number exactly as shown click on the **Next** button.

POINT

You cannot use your notebook until you have accepted the License Agreement and entered your product key. If you stop the process your notebook will return to the beginning of the Windows 98 Welcome Process, even if you shut your LifeBook down and start it up again.

POINT

You will find a Recovery CD packet included with your notebook. Please store the packet in a safe place in case there is a loss of data, and it becomes necessary to re-install your operating system and/or application programs. *(See Recovery CD-ROM on page 86 for more information)*

REGISTERING YOUR LIFEBOOK

What are the benefits of registering?

You will receive an identification label for your LifeBook, which, if your LifeBook is ever lost, may help in getting it returned to you. You also receive priority Personal Identification Number (PIN) technical support access and useful product mailings. Proof of purchase is not required if you register within 30 days of your purchase.

How do I register?

With Windows 98, it is a part of the Windows 98 Welcome process. If you do not register during the Welcome process you can double-click on the LifeBook Registration icon on your desktop and then follow the instructions.

POINT

Make sure you have connected a phone line to your modem before you use E-Registration.

You may also complete the pre-printed registration form and either:

- Fax to 1-949-450-9140
- Mail to:
  Fujitsu PC Corporation
  15355 Barranca Pkwy
  Irvine, CA 92618-9520
- Call: 1-800-8fujitsu (1-800-838-5487)

You may also register on our Web site:

- www.8fujitsu.com. You will need to be set up with an Internet Service Provider (ISP) to use this option.

POINT

You can register your LifeBook Series notebook with any operating system via mail, telephone or fax.

Power Management

Your LifeBook Series notebook has many options and features for conserving battery power. Some of these features are automatic and need no user intervention, such as those for the internal modem. However, others depend on the parameters you set to best suit your operating conditions, such as those for the display brightness. Internal power management for your notebook may be controlled from settings made in your operating system, pre-bundled power management application, or from settings made in BIOS setup utility,.

Besides the options available for conserving battery power, there are also some things that you can do to prevent your battery from running down as quickly. For example, you can create an appropriate power saving profile, put your notebook into Suspend mode when it is not performing an operation, and you can limit the use of high power devices. As with all mobile, battery powered computers, there is a trade-off between performance and power savings.

POWER/SUSPEND/RESUME BUTTON

When your notebook is active, the Power/Suspend/Resume button can be used to manually put your notebook into Suspend mode. Push the Power/Suspend/Resume button when your notebook is active, but not actively accessing anything, and immediately release the button. You will hear two short beeps and your system will enter Suspend mode.

If your notebook is suspended, pushing the Power/Suspend/Resume button will return your notebook to active operation. You can tell whether or not your system is in Suspend mode by looking at the Power indicator. *(See figure 2-8 on page 16 for location)* If the indicator is visible and not flashing, your notebook is fully operational. If the indicator is both visible and flashing, your notebook is in Suspend mode. If the indicator is not visible at all, the power is off or your notebook is in Save-to-Disk mode *(See Save-to-Disk Mode)*

SUSPEND MODE

Suspend or Standby mode in Windows 98 saves the contents of your notebook's system memory during periods of inactivity by maintaining power to critical parts. This mode will turn off the CPU, the display, the hard drive, and all of the other internal components except those necessary to maintain system memory and allow for restarting. Your notebook can be put in Suspend mode by:

- Pressing the Power/Suspend/Resume button when your system is turned on.
- Selecting Standby from the Windows Shut Down menu.
- Selecting System Suspend from the Power Panel toolbar menu (Windows 95 and Windows NT only).
- Timing out from lack of activity.
- Allowing the battery to reach the Dead Battery Warning condition.

Your notebook's system memory typically stores the file(s) on which you are working, open application(s) information, and any other data required to support the operation(s) in progress. When you resume operation from Suspend mode, your notebook will return to the point where it left off. You must use the Power/Suspend/Resume button to resume operation, and there must be an adequate power source available, or your notebook will not resume.

CAUTION

If you are running your notebook on battery power, be aware that the battery continues to discharge while your notebook is in Suspend mode, though not as fast as when fully operational.

SAVE-TO-DISK MODE

The Save-to-Disk mode saves the contents of your notebook's system memory to the hard drive as a part of the Suspend/Resume mode. Your notebook is preconfigured to perform this function. The Save-to-Disk mode can also be configured through the system BIOS to run in other ways depending on what you need to accomplish. *(See BIOS Setup Utility on page 41 for more information)*

Default Methods for using Save-to-Disk Mode:

1. Press the [FN] button together with the Power/ Suspend/Resume button. This will open a Save-to-Disk dialog box and begin the process.

Customer configured BIOS methods for using Save-to-Disk Mode:

1. Click on the **Start** button, click **Shut Down** and then **Standby**. Prior to that you should enable Save-to-Disk in the BIOS setup utility.

   OR

2. Enable **Save-To-Disk** mode from within the Power dialog box of the BIOS setup utility, then press the Power/Suspend/Resume button to execute this command under DOS or Windows 98.

   OR

3. Enable **Save-To-Disk** mode from within the Power dialog box of the BIOS setup utility, then allow the notebook to time out from lack of activity.

POINT

Disabling the Suspend/Resume button prevents it from being used to put your notebook in Suspend or Save-to-Disk mode. The resume function of the button cannot be disabled.

POINT

Resume on Modem Ring will not operate when Save-to-Disk mode has been activated in the BIOS or in PMSet 98 (Windows 98 only).

CAUTION

The Suspend or Save-to-Disk mode should not be used with certain PC Cards. Check your PC Card documentation for more information.

POINT

If your notebook is actively accessing information when you enter the Suspend or Save-to-Disk mode, changes to open files are not lost. The files are left open and memory is kept active during Suspend mode or the memory is transferred to the internal hard drive during Save-to-Disk mode.

POINT

When PC Cards or external devices are in use, Save-to-Disk mode cannot return to the exact state prior to suspension, because all of the peripheral devices will be re-initialized when the system restarts.

POINT

The main advantage of using the Save-to-Disk function is that power is not required to maintain your data. This is particularly important if you will be leaving your notebook in a suspended state for a prolonged period of time. The drawback of using Save-to-Disk mode is that it lengthens the power down and power up sequences and resets peripheral devices.

POINT

Save-to-Disk mode requires allocating a significant amount of hard drive capacity for saving all system memory, which reduces your usable disk space. When you purchase your notebook it will have space allocated for the memory installed. If you upgrade the original system by adding a memory upgrade module without changing the size of your Save-to-Disk allocation you will get an error message when you try to activate Save-to-Disk mode and it will not work. Use the PHDISK Utility to increase the size of the Save-to-Disk file, SAVE2DSK.BIN. You can download the Save-to-Disk File Allocation information from our Web site at www.8fujitsu.com. If you need help, contact your support representative for recommendations.

IDLE MODE

Idle mode is one of the power management parameters. When Idle mode is enabled, the CPU is put into low-speed operation when there is no activity (keystroke, pointer action, sound generation, video display change, modem transmission or reception, etc.) on your notebook for 16 seconds. Any activity will cause the normal operation to restart automatically. This feature is independent of the Suspend/Resume modes.

STANDBY MODE

Standby mode is one of the power management parameters. When Standby mode is activated, your notebook puts the CPU in low-speed operation, shuts off the display and turns off the hard drive when there is no activity (keystroke, pointer action, sound generation, video display change, modem transmission or reception, etc.) on your notebook for the user selected time-out period. Any activity will cause your notebook to return to normal operation automatically. This feature is independent of the Power/Suspend/Resume button.

DISPLAY TIMEOUT

The Video Timeout is one of the power management parameters. This feature saves power by turning off the display if there is no keyboard or pointer activity for the user selected timeout period. Any keyboard or pointer activity will cause the display to restart automatically. This feature is independent of the Power/Suspend/Resume button and can be enabled and disabled in Windows and BIOS setup utility. *(See BIOS Setup Utility on page 41 for more information)*

HARD DISK TIMEOUT

The Hard Disk Timeout is another one of the power management parameters. This feature saves power by turning off the hard drive if there is no hard drive activity for the user selected timeout period. Any attempt to access the hard drive will cause it to restart automatically. This feature is independent of the Power/Suspend/Resume button and can be enabled and disabled in Windows and BIOS setup utility. *(See BIOS Setup Utility on page 41 for more information)*

WINDOWS 98 POWER MANAGEMENT

Power Management

The Power Management icon located in the Windows 98 Control Panel allows you to configure some of the power management settings. For example, you can use the Power Management to set the timeout values for turning off the display and hard disks whether you are running the notebook on battery power or one of the adapters. *(See Pre-Installed Software on page 34 for more information)* The settings may also be changed in the BIOS. *(See BIOS Setup Utility on page 41 for more information)*

ACPI and Windows 98

Short for Advanced Configuration & Power Interface, a power management specification developed by Intel, Microsoft, and Toshiba. ACPI, which is part of the Windows 98 operating system, enables the operating system to control the amount of power given to each device attached to the computer. With ACPI, the operating system can turn off peripheral devices, such as the CD-ROM player, when it is not in use. Due to ongoing industry development of ACPI technology, we have configured your notebook to APM (Advanced Power Management) mode.

RESTARTING THE SYSTEM

If your system is on and you need to restart it, be sure that you use the following procedure.

1. Click the **Start** button, and then click **Shut Down**.
2. Select the **Restart** option from within the Windows Shut Down dialog box.
3. Click **OK** to restart your notebook. Your notebook will shut down and then reboot.

CAUTION

Turning off your notebook without exiting Windows or turning on your notebook within 10 seconds of the notebook being shut off may cause an error when you start the next time.

POWER OFF

Before turning off the power by choosing Shut Down from the Windows 98 Start menu, check that the Hard Drive, DVD/CD-ROM, CD-RW, PC Card and the Floppy Disk Drive Access indicators are all Off. *(See figure 2-8 on page 16)* If you turn off the power while accessing a disk or PC Card there is a risk of data loss. To assure that your notebook shuts down without error, use the Windows shut down procedure.

POINT

You may also use the Power/Suspend/Resume button to shut off your notebook. To do so, first press the Power/Suspend/Resume button to suspend your notebook. Next press and hold the button again until your notebook shuts off. However, in Windows you should always use the correct way to shut down your notebook. From the start menu select shut down.

CAUTION

Never turn your notebook off while an application is running. Be sure to close all files, exit all applications, and shut down your operating system prior to turning off the power with the power switch. If files are open when you turn the power off, you will lose any changes that have not been saved, and may cause disk errors.

Using the correct procedure to shut down from Windows, allows your notebook to complete its operations and turn off power in the proper sequence to avoid errors. The proper sequence is:

1. Click the **Start** button, and then click **Shut Down**.
2. Select the **Shut Down** option from within the Windows Shut Down dialog box.
3. Click **OK** to shutdown your notebook.

If you are going to store your notebook for a month or more see Care and Maintenance Section.

Section Four
User Installable Features

Lithium Ion Battery
Recharging the Batteries 51
Replacing the Battery 52

SuperDisk™ 120 or Floppy Disk Drive
Loading a Disk 53
Ejecting a Disk 53
Software Eject for LS-120 Disk 53
Preparing a Disk for Use 53

CD-ROM Drive
Loading a CD 55
Removing a CD 56
Automatic Insertion Function 56

DVD/CD-ROM Drive
DVD Player Software 57
Loading a DVD/CD 58
Removing a DVD/CD 58
Using the DVD Player Software 58
Using the DVD Player on Battery Power 59
Automatic Insertion Function 60

Hard Disk Drive
Formatting the Hard Disk Drive 61
Modular Hard Disk Drive 61

PC Cards
Installing PC Cards 63
Removing PC Cards 64

Memory Upgrade Module
Installing a Memory Upgrade Module 65
To Remove a Memory Upgrade Module 66
Checking the Computer Recognition of New Memory Capacity 66

Device Ports
Communications Port 67
Parallel Port 67
Serial Port 67
PS/2 Port 67
Universal Serial Bus Port 68
Infrared Port 68
Wireless Infrared Mouse Port 68
Microphone Jack 68
Stereo Line-In Jack 69
Headphone Jack 69
Docking Port 69
External Monitor Port 69
External Floppy Disk Drive Port 69

Lithium Ion Battery

Your Fujitsu Series LifeBook notebook has a Lithium Ion battery that provides power for operating your notebook when no external power source is available. The battery is durable and long lasting, but should not be exposed to extreme temperatures, high voltages, chemicals or other hazards.

The Lithium Ion battery operating time may become shorter if it is used under the following conditions:

- When used at temperatures that exceeds a low of 5˚C or a high of 35˚C. Extreme temperatures not only reduce charging efficiency, but can also cause battery deterioration. The Charging icon on the Status Indicator panel will flash when you try to charge a battery that is outside its operating temperature range. *(See Battery Charging Indicators on page 17 for more information)*
- When using a high current device such as a modem, DVD drive, CD-ROM drive, or the hard drive, using the AC adapter will conserve your battery life.

CAUTION

Actual battery life will vary based on screen brightness, applications, features, power management settings, battery condition and other customer preferences. DVD drive, CD-ROM drive or hard drive usage may also have a significant impact on battery life. The battery charging capacity is reduced as the battery ages. If your battery is running low quickly, you should replace it with a new one.

CAUTION

Do not leave a faulty battery in your notebook. It may damage your AC adapter, optional Auto/Airline adapter, another battery or your notebook itself. It may also prevent operation of your notebook by draining all available current into the bad battery.

CAUTION

Under federal, state, or local law it may be illegal to dispose of batteries by putting them in the trash. Please take care of our environment and dispose of batteries properly. Check with your local government authority for details regarding recycling or disposing of old batteries. If you cannot find this information elsewhere, contact your support representative at 1-800-8FUJITSU (1-800-838-5487).

RECHARGING THE BATTERIES

If you want to know the condition of the primary Lithium Ion battery, check the Battery Level indicator located on the Status Indicator panel. The indicator changes as the battery level changes.

The Lithium Ion battery is recharged internally using the AC adapter or Auto/Airline adapter. To recharge the battery make sure the battery that needs to be charged is installed in your notebook and connect the AC or Auto/Airline adapter.

POINT

Make sure that the Battery Charging indicator and the percentage charge is shown inside the Battery Level icon on the Status Indicator Panel.

There is no memory effect on the Lithium Ion battery therefore you do not need to discharge the battery completely before recharging. The charge times will be significantly longer if your notebook is in use while the battery is charging. If you want to charge the battery more quickly, put your notebook into Suspend mode, or turn it off while the adapter is charging the battery. *(See Power Management on page 44 for more information on Suspend mode and shutdown procedure)*

CAUTION

Using heavy current devices such as Modem or frequent DVD/CD-RW/CD-ROM accesses may prevent charging completely.

Low Battery State

When the battery is running low, your notebook will beep every 15 seconds and the Battery Level indicator will flash. If you do not respond to the low battery alarm, the batteries will continue to discharge until they are too low to operate. When this happens there will be a multiple beep alarm and the Battery Level indicator will show a dead battery. Your notebook will then go into Suspend mode to try and protect your data for as long as possible. There is no guarantee that your data will not be lost once the notebook reaches this point.

CAUTION

You may not be able to hear the audio alarm if the volume control is set too low or is turned off by either the hardware or software. However, you will still be able to see the Battery Level indicator flash. Once the low battery alarm occurs you need to save all your active data and put your notebook into Suspend mode until you can provide a new power source. You should provide a charged battery, an AC power adapter, or Auto/Airline as soon as possible.

CAUTION

When you are in Suspend mode there must always be at least one power source active. If you turn off the power with the power switch, or remove all power sources while your notebook is in Suspend mode, any data that has not been saved to the hard drive will be lost.

Dead Battery Suspend mode shows on the Status indicator just like the normal Suspend mode. Once your notebook goes into Dead Battery Suspend mode you will be unable to resume operation until you provide a source of power either from an adapter, or a charged battery. Once you have provided power, you will need to press the Suspend/Resume button to resume operation. In the Dead Battery Suspend mode, your data can be maintained for some time, but if a power source is not provided promptly, the Power indicator will stop flashing and go out, meaning that you have lost the data that was not stored. Once you provide power, you can continue to use your notebook while an adapter is charging the battery.

Shorted Batteries

The Status Indicator panel uses a symbol inside the battery outline of the Battery Level indicator to display the operating level available in that battery. *(See figure 2-9 on page 17)* If this display shows a Shorted Battery, it means that the battery is damaged and must be replaced so it does not damage any other parts of your notebook.

REPLACING THE BATTERY

With the purchase of an additional battery, you can have a fully charged spare to swap with one that is not charged. *(Figure 4-1)*

1. Have a charged battery ready to install.
2. Shut down your notebook and disconnect the AC adapter.
3. Slide the battery release panel open.
4. Remove the battery from the bay.
5. Slide the new battery into the bay.
6. Slide the battery release panel close.
7. Plug in the AC adapter and turn the power on.

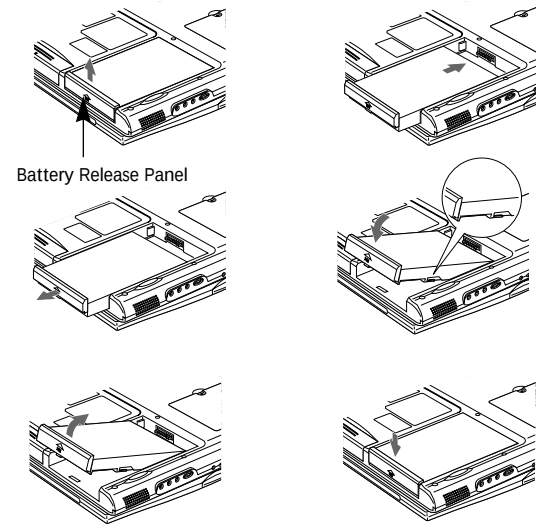


Figure 4-1 Replacing the Battery

CAUTION

If the Lithium Ion battery connector is not fully seated, you may not be able to use your notebook or charge your battery.

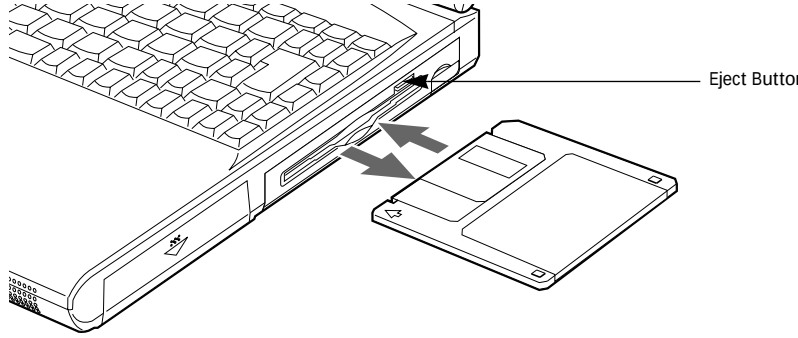


Figure 4-2 Loading/Ejecting a SuperDisk or 3.5" Floppy Disk

SuperDisk™ 120 or Floppy Disk Drive

Your Fujitsu LifeBook Series notebook has either a SuperDisk drive, which can use either standard floppy disks or Super floppy disks (with a capacity of 120MB), or a 3.5" floppy disk drive with the ability to read and write information on removable 1.44MB and 720KB floppy disks.

WARNING

Your SuperDisk 120 drive does not support warm-, or hot-swapping. You must cold-swap in order to use your SuperDisk 120 drive.

LOADING A DISK

To load a disk into your disk drive, follow these easy steps:

1. Orient the disk so that its label is facing upwards and the shutter side is pointing towards the drive. *(Figure 4-2)*
2. Push the disk into the drive until the Eject button pops out and you hear a click.

POINT

When there is no disk in the drive, the Eject button is flush with your notebook.

EJECTING A DISK

To eject a disk from the disk drive, follow these easy steps:

1. Check that the Floppy Disk Drive Access indicator is inactive.
2. Press the Eject button. This will push your disk partially out of the drive.
3. Remove the disk.

SOFTWARE EJECT FOR LS-120 DISK

1. Put the cursor on the LS-120 drive in My Computer.
2. Right mouse click.
3. Select **Eject**.

CAUTION

If you eject the disk while the Floppy Disk Drive Access indicator is active, there is a risk of damaging the data on the disk, the disk itself or even the disk drive.

PREPARING A DISK FOR USE

Before you can use a new disk, it needs to be prepared so your notebook knows where to store information. This preparation is called formatting or initializing a disk. You will need to format new disks, unless they are preformatted. *(Please refer to your operating system manual for step-by-step instructions on formatting a disk)*

To prevent accidental erasure of the data stored on a disk, slide the "write protect" tab until a small hole is exposed. This sets the disk into a protected state where nothing can be added or removed. If you want to add or remove data on a protected disk, slide the "write protect" tab to close the small hole. *(Figure 4-3)*

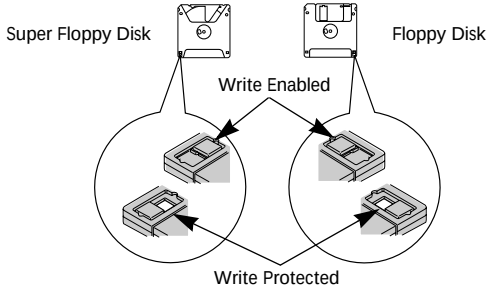


Figure 4-3 Floppy Disk Write Protect

CAUTION

Formatting a floppy disk that already contains data will erase all of the information on the disk.

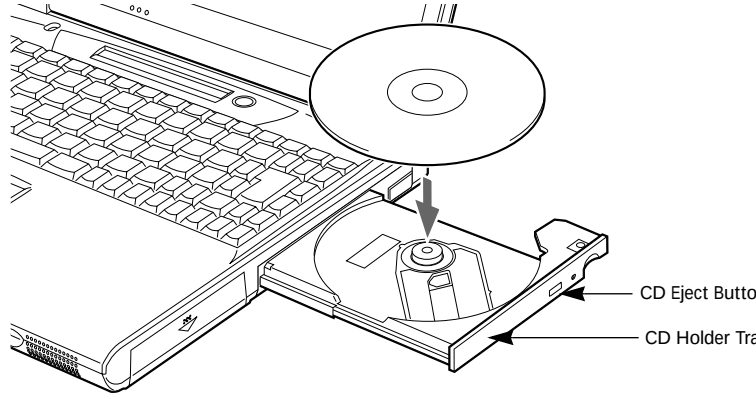


Figure 4-4 CD-ROM Drive

CD-ROM Drive

Your Fujitsu LifeBook Series notebook contains a 24x max CD-ROM player. This gives you access to both software and audio CDs. *(Figure 4-4)*

CAUTION

Do not operate your CD-ROM drive unless your notebook is sitting on a flat surface. Using a CD when the drive is not level may damage the drive or prevent proper operation.

LOADING A CD

To load a CD into your CD-ROM drive, follow these easy steps:

1. Push and release the eject button on the front of the CD-ROM drive to open the holder tray. The tray will come out of the notebook a short distance.
2. Gently pull the tray out until a CD can easily be placed in the tray.

CAUTION

There may be a protective sheet in the tray when it was shipped, please make sure it is removed before operating.

3. Place the CD into the tray, label side up, with the hole in the center of the CD. Snap the CD onto the raised circle in the center of the tray.
4. Gently push the holder tray back in until you hear a click. *(Figure 4-5)*

POINT

If you have disabled the Automatic Insertion Function, you will have to start the CD from your desktop, as your notebook will not automatically recognize that a CD has been loaded.

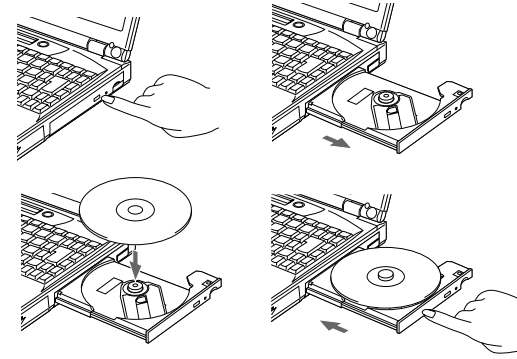


Figure 4-5 Loading/Ejecting a CD

REMOVING A CD

1. Push and release the eject button on the front of the CD-ROM drive. This will stop the CD and the holder tray will come out of the notebook a short distance.
2. Gently pull the tray out until the CD can easily be removed from the tray.
3. Carefully remove the CD from the holder tray.
4. Gently push the holder tray back in until you hear a click.

AUTOMATIC INSERTION FUNCTION

The Automatic Insertion Function allows your notebook to automatically start a CD as soon as it is inserted in the CD-ROM drive and the tray is closed. Your notebook will begin playing an audio CD or will start an application if the CD includes an auto run file.

Disabling Automatic Insertion Function

To disable the Automatic Insertion function, follow these easy steps:

1. Save all data and close all open applications.
2. From the **Start** menu, select **Settings**, and then select **Control Panel**.
3. Double-click the **System** icon. This will open the System Properties dialog box.
4. Select the **Device Manager** tab to display the device lists for your notebook.
5. Click on the **+** to the left of the CD-ROM drive icon. The treeview will expand to show the CD-ROM drive manufacturer's name and model number.
6. Double-click on the **CD-ROM drive manufacturer's name** and **model number**. This will open the CD-ROM drive manufacturer's name and model number dialog box.
7. Select the **Settings** tab and then remove the check mark in the **Automatic Insertion Notification** box to turn it off.
8. Click **OK**.
9. Click **Close** in the System Properties dialog box, then click **Yes** in the System Settings Change pop-up window when it asks you to restart your machine and activate this change.

The Automatic Insertion function can be re-activated by repeating this process and placing a check mark in the **Automatic Insertion Notification** box to turn it back on.

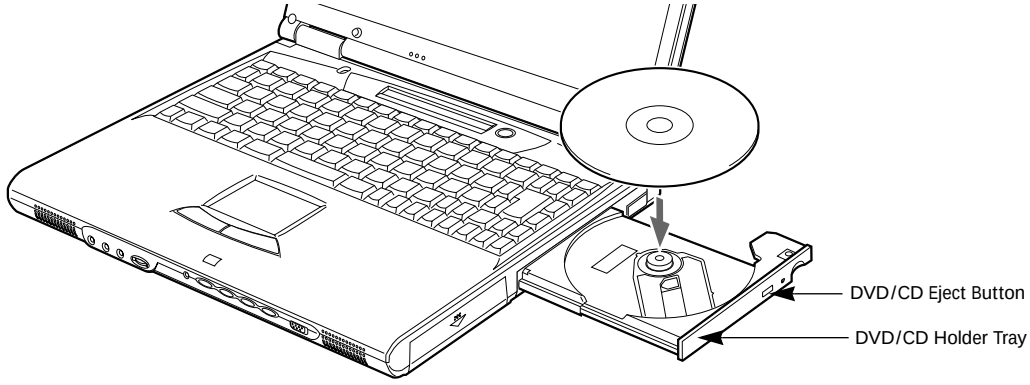


Figure 4-6 DVD/CD-ROM Drive

DVD/CD-ROM Drive

Your Fujitsu LifeBook Series notebook contains a DVD/CD-ROM drive which is both a 6x max DVD player and a 24x max CD player. This gives you access to movie, software and audio DVD/CDs. *(Figure 4-6)*

DVD PLAYER SOFTWARE

With the DVD/CD-ROM drive and DVD Player software you can play DVD movies on your notebook. The DVD player includes controls which allow you to take full advantage of the features of a DVD movie, as well as standard features such as fast forward, fast reverse, pause, etc.

You will need to install the DVD Player software before using the DVD/CD-ROM drive. The DVD Player software is included on the CD labeled DVD Application CD. You may also need to re-install your DVD Player software if:

- Your DVD Player software becomes corrupted and is not operating properly.
- You perform a complete system software recovery utilizing the recovery CD.

POINT

You should periodically check the Fujitsu Web site at www.fujitsu-pc.com for current updated drivers.

Installing the DVD Player Software

To install the DVD Player software follow these easy step:

1. Make sure you either close or disable any open programs, applications and utilities. This includes the MS Office Toolbar, any anti-virus programs and screensavers.
2. Insert the DVD Application CD into the DVD/CD-ROM drive. If the CD AutoRun feature activates, skip Step 3.
3. From the Start menu, select **Run**, type `D:\Softdvd\Setup.exe` and click **OK**.
4. Go through the installation process by following the directions on screen.
5. Once the installation is complete, you will be asked to restart your notebook.
6. To use the DVD Player software, click **Start**, **Programs**, and then **DVD Player**.

Un-installing the DVD Player Software

The DVD Player software should be removed if you wish to use a 3rd party DVD player instead of the Fujitsu DVD Player. To un-install the DVD Player software follow these easy steps:

1. Close any open files on the DVD/CD-ROM drive.
2. Remove any DVD/CD from the drive.
3. From the **Start** menu, select **Settings**, and then select **Control Panel**.

4. Double-click the **Add/Remove Programs** icon.
5. Select the **Fujitsu DVD Player** from the Add/Remove Programs Properties dialog box.
6. Click the **Add/Remove** button and the DVD/CD-ROM software will be un-installed.

POINT

If you wish to use a 3rd party DVD player software, you must un-install the Fujitsu DVD Player software or the 3rd party DVD Player software may not operate correctly.

CAUTION

Do not operate your DVD/CD-ROM drive unless your notebook is sitting on a flat surface. Using a DVD/CD when the drive is not level may damage the drive or prevent proper operation.

CAUTION

Prolonged use of the DVD/CD-ROM drive, such as watching a DVD movie, will substantially reduce your battery life.

LOADING A DVD/CD

To load a DVD/CD into your DVD/CD-ROM drive, follow these easy steps:

1. Push and release the eject button on the front of the DVD/CD-ROM drive to open the holder tray. The tray will come out of the notebook a short distance.
2. Gently pull the tray out until a DVD/CD can easily be placed in the tray.

CAUTION

There may be a protective sheet in the tray when it was shipped, please make sure it is removed before operating.

3. Place the DVD/CD into the tray, label side up, with the hole in the center of the DVD/CD. Snap the DVD/CD onto the raised circle in the center of the tray.
4. Gently push the holder tray back in until you hear a click. *(Figure 4-7)*

POINT

If you have disabled the Automatic Insertion Function, you will have to start the DVD/CD from your desktop, as your notebook will not automatically recognize that a DVD/CD has been loaded.

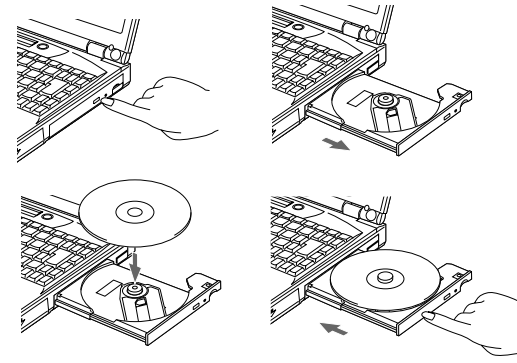


Figure 4-7 Loading/Ejecting a DVD/CD

REMOVING A DVD/CD

1. Push and release the eject button on the front of the DVD/CD-ROM drive. This will stop the DVD/CD and the holder tray will come out of the notebook a short distance.
2. Gently pull the tray out until the DVD/CD can easily be removed from the tray.
3. Carefully remove the DVD/CD from the holder tray.
4. Gently push the holder tray back in until you hear a click.

USING THE DVD PLAYER SOFTWARE

Starting a DVD Movie

1. Insert the DVD movie into the DVD drive of your notebook. If the CD AutoRun feature activates, skip Step 2.
2. From the **Start** menu, select **Programs**, then select **DVD Player** and click **DVD Player**. This will launch the DVD movie.
3. Click **OK** to close the About DVD Player Performance dialog box and the movie will begin.

Opening the DVD Player Control Panel

In most DVD-ROMs, you have the option to alter how the movie should play and what you wish to view. You can do this by using the DVD Player control panel and the mouse.

1. Right-click on the movie screen to open a drop-down menu for options.
2. Select **Panel Control**, for all the controls available, select **Navigator Control** for navigation controls only, or select **Angle Control** to open a small box that allows you to select different angles to view the movie. From these controls, it is possible to add sub-titles, speed up or slow down, even play movie related games.

POINT

For more information on using the Control Panels and the other options for navigating a movie, review the CineMaster on-line help file located at C:\ProgramFiles\Fujitsu\DVDPlayer\DVDPlayer.hlp on your notebook.

Using the DVD Player Control Panel

The DVD Player software allows you to watch the movie much like a VCR player. You have the option to pause, rewind, fast-forward and stop the movie at any point.

1. Right-click on the movie screen to open a drop-down menu for options.
2. Select **Panel Control**, for all the controls available. This will open the control panel into the bottom of the screen.
3. To Pause the movie, click the ⏸ button.
4. To Rewind the movie, click the ◀◀ button to rewind to a specific portion of the movie, or the ⏮ button to return to the opening screen.
5. To Fast-forward the movie, click the ▶▶ button to forward to a specific portion of the movie, or the ⏭ button to jump to the ending credits.
6. To Stop the movie, click the ■ button.

Exiting the DVD Player

1. Click on the ✕ located in the upper right corner of the title bar. This will open a DVD Player dialog box.
2. Click **Yes** to stop and exit the movie, or **No** to close the DVD Player dialog box and return to the movie.

USING THE DVD PLAYER ON BATTERY POWER

Since DVD drives consume a lot of power, your overall battery life will be shorter when operating the DVD drive continuously (such as watching a DVD movie) than during standard operation. Many movies run-times are longer than your notebook can support on a single battery. If you are watching a DVD movie on battery power you may need to swap in an additional, charged battery or attach AC power during the movie to view it in its entirety.

CAUTION

Prolonged use of the DVD drive, such as watching a DVD movie, will substantially reduce your notebook's battery life.

CAUTION

Many movies run-times are longer than your system can support on a single battery. If you are watching a DVD movie on battery power you may need to swap in an additional, charged battery or attach AC power during the movie to view it in its entirety.

POINT

An additional full-charged battery is highly recommended if you will be watching DVD movies on battery power. If you don't have an additional battery, you may purchase one either on-line at FPCDirect.fujitsu-pc.com or call 1-877-FPCDirect (1-877-372-3473).

To Watch a Movie on Battery Power:

1. Have an additional full-charged battery or your AC adapter ready for use.
2. Start watching your DVD movie.
3. When the low battery warning occurs, immediately stop the movie and exit the DVD player.

CAUTION

If you do not stop the DVD player quickly and the notebook attempts to auto-suspend (critical battery low state) the notebook will shutdown improperly. If this occurs, you will need to perform a hard reset and follow the instruction, if any, presented to you before the system will reboot.

4. Manually place your notebook into suspend mode by depressing the Suspend button and replace the discharged battery with an additional full-charged battery. Or if you do not have an additional battery, you may attach AC power as soon as you see the low battery warning.
5. Resume your notebook by pressing the Suspend button again. This step is not required if you attached AC power without entering suspend mode.
6. Restart your DVD player, locate and skip to the chapter of the movie you were last watching.
7. Continue watching your DVD movie.

POINT

Some shorter DVD movies may not require you to swap batteries or attach AC power to complete them. However, it is best to be prepared since actual battery life while operating the DVD drive cannot be guaranteed.

AUTOMATIC INSERTION FUNCTION

The Automatic Insertion Function allows your notebook to automatically start a DVD/CD as soon as it is inserted in the DVD/CD-ROM drive and the tray is closed. Your notebook will begin playing an audio DVD/CD or will start an application if the DVD/CD includes an auto run file.

Disabling Automatic Insertion Function

To disable the Automatic Insertion function, follow these easy steps:

1. Save all data and close all open applications.
2. From the **Start** menu, select **Settings**, and then select **Control Panel**.
3. Double-click the **System** icon. This will open the System Properties dialog box.
4. Select the **Device Manager** tab to display the device lists for your notebook.
5. Click on the **+** to the left of the DVD/CD-ROM drive icon. The treeview will expand to show the DVD/CD-ROM drive manufacturer's name and model number.
6. Double-click on the **DVD/CD-ROM drive manufacturer's name** and **model number**. This will open the DVD/CD-ROM drive manufacturer's name and model number dialog box.
7. Select the **Settings** tab and then remove the check mark in the **Automatic Insertion Notification** box to turn it off.
8. Click **OK**.
9. Click **Close** in the System Properties dialog box, then click **Yes** in the System Settings Change pop-up window when it asks you to restart your machine and activate this change.

The Automatic Insertion function can be re-activated by repeating this process and placing a check mark in the **Automatic Insertion Notification** box to turn it back on.

Hard Disk Drive

Your Fujitsu LifeBook Series notebook hard disk drive capacity is dependent on which model you are using. Some notebooks may also contain a removable hard disk drive in addition to the internal hard disk drive. *(See Specifications on page 97 for more information)*

FORMATTING THE HARD DISK DRIVE

The internal hard disk drive is formatted, or initialized, at the factory. You do not need to format it under normal circumstances. If you decide to reformat due to corruption or upgrade, please refer to your operating system documentation for the correct procedure.

⚠ WARNING

Reformatting the hard disk drive will erase all of the data currently stored on it, including the operating system and installed programs.

Before you reformat your hard disk drive, please note:

- Any data that currently resides on your hard disk drive must be backed-up to floppy disks or other data storage media, or it will be permanently lost. These back-up disks can then be used to re-install and restore your data. *(See your operating system manual for more information on backing-up your data files)*
- All application software that is installed on the hard disk drive, must be re-installed from the original source.
- The factory-installed software, including the operating system, can be restored using the Recovery CD that came with your notebook.

MODULAR HARD DISK DRIVE

Your notebook may contain a modular hard disk drive in addition to the internal hard disk drive. If you notebook has a modular hard disk drive you will need to format the drive before using it.

Formatting the Modular Hard Disk Drive

1. Boot the system. When the Fujitsu logo appears press the [F8] key to bring up the Microsoft Windows Startup Menu.
2. Select option 6 command prompt only, using the arrow key and press [Enter].
3. At the `C:>` prompt, type `Fdisk` and press [Enter].
4. You will see a long message appear on the screen. At the bottom of the message you will see the option, `Do you wish to enable large disk support (Y/N)...? [N].` Type **Y** to change the option in the last statement to yes and press [Enter] to continue.
5. You are now in the FDISK Options menu. Type **5** to select Change Current fixed disk drive and press [Enter].
6. The next Change Current Fixed Disk Drive screen displays info for both Primary(C:) & Secondary (D:) Disks. Type **2** at the Fixed Disk Drive Number and press [Enter].
7. You are now back in the FDISK Options menu for drive D:. Press **4** in the Enter Choice: [ ] field to go the Display partition information option and press [Enter].
8. If the message `No partitions defined` appears at the bottom of the Display Partition Information screen, press [Esc].
9. You are now back in the FDISK Options menu. Press **1** to change the Enter Choice: [ ] field to the Create DOS partition or Logical DOS Drive option (it should already be set to 1 as the default) and press [Enter].
10. Press [Enter] again to select the default setting (#1) Create Primary DOS Partition.
11. Fdisk will verify drive integrity and ask you if you wish to use the maximum available size for Primary DOS Partition. Type **Y** for Yes. A message appears "Primary DOS partition created, drive letters changed as added." Press Esc to continue. In this case the partition usage will be 100% or 10GB, this number may vary depending on your drive size.
12. You are now back in the FDISK Options menu. Press **4** to display your partitions info.

13. You should see the following in the Create Primary DOS Partition screen:

```
Partition   Status Type   Volume
Label
D:1         PRI DOS
Mbytes      System        Usage
6194*       Unknown       100%
Primary DOS Partition created
```

14. Press [Esc] three times to exit the Create Primary DOS Partition screen and FDISK Options menu.
15. Restart your notebook. when the Fujitsu logo appears, press the [F8] key to bring up the Microsoft Startup Menu.
16. Type `FORMAT D`: to format the hard drive. When formatting is done, restart your notebook.

Your notebook will now detect the hard disk drive and activate it within your system. The drive letters associated with the hard disk drive will be created and listed under My Computer and Windows Explorer.

Removing and Installing the Removable Hard Disk Drive

To remove the hard disk drive or to install a new hard disk drive follow these easy steps: *(Figure 4-8)*

WARNING

Be sure to turn off your notebook and disconnect the AC adapter before replacing the hard disk drive, otherwise you might get an electric shock.

1. Turn off the notebook and disconnect the AC adapter.
2. Unlock the release button and slide down the cover.
3. Remove the hard disk drive and insert the new one.
4. Slide the cover up to lock.

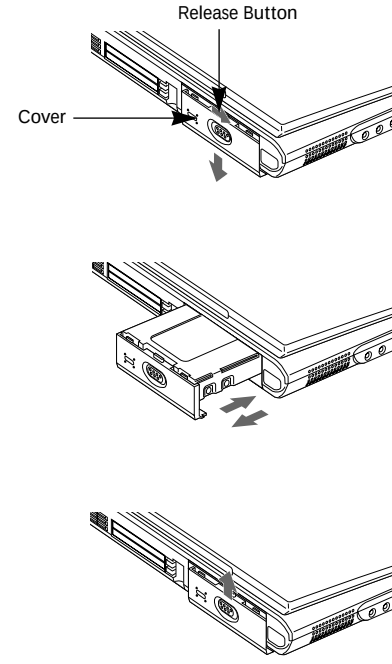


Figure 4-8 Removing/Installing the removable hard disk drive

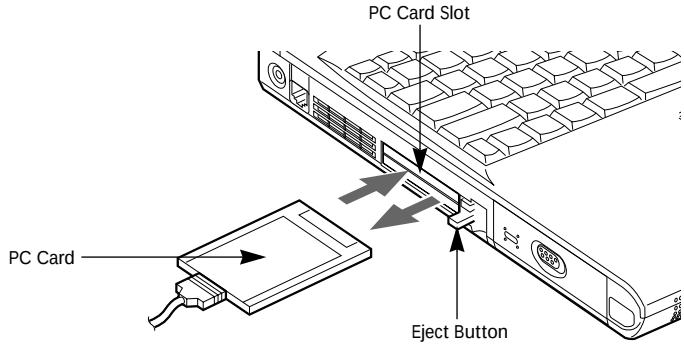


Figure 4-9 Installing/Removing PC Cards

PC Cards

Your LifeBook Series notebook supports Type II PC Cards, which can perform a variety of functions depending on which type of PC Card you install. *(Figure 4-9)*

Some available PC Cards:

- Zoomed Video
- Fax/data modem
- Local area network (LAN)
- IDE solid-state disk
- SCSI
- Other PC Cards that conform to PCMCIA 2.1 or CardBus standards.

For further information, refer to the instructions supplied with your PC Card.

POINT

Windows NT 4.0 does not support Zoomed video cards.

INSTALLING PC CARDS

PC Cards are installed in the PC Card slot. To install a PC Card, follow these easy steps:

WARNING

Installing or removing a PC Card during your notebook's shutdown or bootup process may damage the card and/or your notebook.

WARNING

Do not insert a PC Card into a slot if there is water or any other substance on the card as you may permanently damage the card, your notebook or both.

1. See your PC Card manual for specific instructions on the installation of your card. Some PC Cards may require your notebook to be Off while installing them.
2. Make sure there is no PC Card currently in the slot. If there is, see Removing PC Cards.
3. Insert your PC Card into the slot with the product label facing up.

4. Push the card into the slot firmly until it is seated in the opening. You will hear a click and the Eject button will pop away from your notebook.
5. Flip the Eject button towards the front of your notebook.
6. Lock the PC Card into the slot by sliding the Lock button toward the front of your notebook.

REMOVING PC CARDS

To remove a PC Card, follow these easy steps:

CAUTION

Windows has a shutdown procedure for PC Cards that must be followed before removing a card. (Please review your operating system manual for the correct procedure)

1. See your PC Card manual for specific instructions on removing your card. Some PC Cards may require your notebook to be Off while removing them.

POINT

If the dialog box states that the device cannot be removed, you must save all of your open files, close any open applications and shutdown your notebook. Once your notebook has been shutdown, you must turn Off the power using the power switch.

2. Unlock the PC Card from the slot by sliding the Lock button toward the rear of your notebook.
3. Flip the Eject button towards the rear of your notebook until it is fully extended, and then push it in until it is flush with the notebook. This will push the PC Card slightly out of the slot allowing you to remove the card.

CAUTION

If the PC Card has an external connector and cable, do not pull the cable when removing the card.

Memory Upgrade Module

Your Fujitsu LifeBook Series notebook comes with 64MB or 128MB high speed Synchronous Dynamic RAM (SDRAM) factory installed. To increase your notebook's memory capacity, you may install an additional memory upgrade module. You can also replace the original memory module with a higher capacity module. The memory upgrade must be a dual-in-line (DIMM) SDRAM module, however it can be any capacity.

CAUTION

Do not remove any screws from the memory upgrade module compartment, except the ones specifically shown in the directions for installing and removing the memory upgrade module.

INSTALLING A MEMORY UPGRADE MODULE

1. Turn off power to your notebook using the power switch, and remove any power adapter (AC or auto/airline).
2. Make sure that all the connector covers are closed.
3. Turn the notebook bottom side up, with the front panel toward you.
4. Remove the screw at the front of the memory upgrade module compartment. *(Figure 4-10)*
5. Remove the cover by tilting the front edge up and then pulling forward until the tabs on the cover are free.

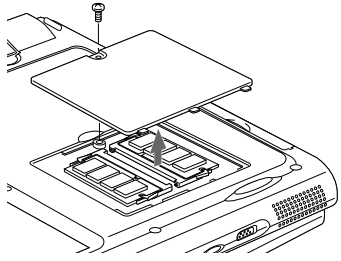


Figure 4-10 Opening the Memory Upgrade Compartment

CAUTION

The memory upgrade module can be severely damaged by electro-static discharge (ESD). Be sure you are properly grounded when handling and installing the module.

6. Remove the memory upgrade module from the static guarded sleeve.
7. Align the memory upgrade module with the part side up. Align the connector edge of the memory upgrade module with the connector slot in the compartment. The connector will be pointing toward the rear of the notebook.
8. Insert the memory upgrade module at a 45° angle. Press the connector edge of the module firmly down and into the connector until it lodges under the retaining clip. You will hear a click when it is properly in place. *(Figure 4-11)*

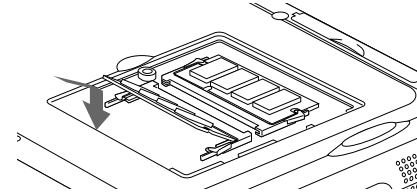


Figure 4-11 Installing a Memory Upgrade Module

9. Replace the cover by hooking the tabs under the rear edge of the compartment opening and tilting down until flush with the bottom of your notebook.
10. Replace the screw.

POINT

The memory upgrade module is not something you routinely remove from your notebook. Once it is installed, you can leave it in place unless you want to increase system memory capacity.

TO REMOVE A MEMORY UPGRADE MODULE:

1. Perform steps 1 through 5 of Installing a Memory Upgrade Module.
2. Pull the clips sideways away from each side of the memory upgrade module at the same time.
3. While holding the clips out, remove the module from the slot by lifting it up and pulling towards the rear of your notebook. *(Figure 4-12)*

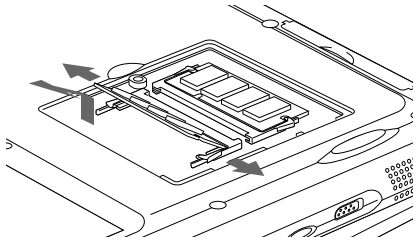


Figure 4-12 Removing a Memory Upgrade Module

4. Store the memory upgrade module in a static guarded sleeve.
5. Replace the cover by following steps 9 and 10 of Installing a Memory Upgrade Module.

POINT

After installing your added memory module, you must complete the Resetting the Save-to-Disk Parameters procedure in order for the Save-to-Disk mode to operate properly on your LifeBook. *(See Save-to-Disk Mode on page 44 for more information)*

CHECKING THE COMPUTER RECOGNITION OF NEW MEMORY CAPACITY

Once you have changed the system memory capacity by either adding or removing a memory upgrade module, be sure to check that your notebook has recognized the change.

You can check the memory capacity by looking at the main menu of the BIOS setup:

1. Turn on the power to your notebook using the power switch.
2. Allow the system to start booting and press the key once the Fujitsu logo appears on the screen. This will open the main menu of the BIOS setup with the current settings displayed. *(See BIOS Setup Utility on page 41 for more information)*

The System Memory and the Extended Memory capacity, as detected by your notebook during the Power On Self Test (POST), are displayed at the bottom of the main menu screen. The chart below shows you the possible displays that can be shown on the main menu screen. In the chart, Slot 1 is the original SDRAM memory compartment while Slot 2 is the upgrade compartment located in the center of your notebook.

POINT

If the total memory displayed is incorrect, check that your memory upgrade module is properly installed. (If the module is properly installed and the capacity is still not correctly recognized, see the Troubleshooting section starting on page 73)

Installed			Displayed	
Slot 1	**Slot 2**	**Total RAM Installed**	**System Memory**	**Extended Memory**
64MB	0	64MB	640K	63MB
64MB	32MB	96MB	640K	95MB
64MB	64MB	128MB	640K	127MB
64MB	128MB	192MB	640K	191MB
128MB	0	128MB	640K	127MB
128MB	32MB	160MB	640K	159MB
128MB	64MB	192MB	640K	191MB
128MB	128MB	256MB	640K	255MB

Device Ports

Your Fujitsu LifeBook Series notebook comes equipped with multiple ports to which you can connect an external device including: disk drives, keyboards, modems, printers, etc.

COMMUNICATIONS PORT

Depending on your notebooks configuration you will have either a Modem (RJ-11) jack or LAN (RJ-45) jack. Refer to your configuration label for your specific option. *(See Configuration Label on page 97 for more information)*

Modem (RJ-11) Telephone Jack

The modem (RJ-11) telephone jack is used for an internal modem. To connect the telephone cable follow these easy steps: *(See figure 2-4 on page 12 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
3. Plug the other end of the telephone cable into a telephone outlet.

WARNING

Do not connect the internal modem to a Digital PBX as it may cause serious damage to the modem or your notebook. It should be noted that some hotels use the Digital PBX systems, please be sure to find out BEFORE you connect your modem. Consult your PBX manufacturer's documentation for more information.

CAUTION

The internal modem is designed to the ITU-T V.90 standard. Its maximum speed of 53000bps is the highest allowed by the FCC, and its actual connection rate depends on the line conditions. The maximum speed is 33600bps at upload.

CAUTION

The internal modems on all Fujitsu LifeBook Series notebooks are not qualified for use with telephone systems outside the United States and Canada and may not operate in other countries.

Internal LAN (RJ-45) Jack

The internal LAN (RJ-45) jack is used for an internal Fast Ethernet (10/100 Base-T/Tx) connection. If your notebook has been configured with internal LAN capability you will need to configure your notebook to work with your particular network. (Please refer to your network administrator for information on your network configuration.) To connect the LAN cable follow these easy steps: *(See figure 2-4 on page 12 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
3. Plug the other end of the cable into a LAN outlet.

PARALLEL PORT

The parallel port, or LPT port, allows you to connect parallel devices, such as a printer to your notebook. In order to connect a parallel interface device follow these easy steps: *(See figure 2-6 on page 14 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
3. Tighten the two hold-down screws, located on each end of the connector.

SERIAL PORT

The serial port, or COMM port, allows you to connect serial devices, such as printers or scanners. In order to connect a serial interface device follow these easy steps: *(See figure 2-6 on page 14 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
3. Tighten the two hold-down screws, located on each end of the connector.

PS/2 PORT

The PS/2 port allows you to connect an external keyboard, and/or numeric keypad and mouse. In order to connect a PS/2 interface device follow these easy steps: *(See figure 2-6 on page 14 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

POINT

A mouse, keyboard, or keypad may be installed and automatically recognized by your notebook without restarting or changing setups.

POINT

The use of two PS/2 devices simultaneously from the port requires a PS/2 splitter.

UNIVERSAL SERIAL BUS PORT

The Universal Serial Bus port (USB) allows you to connect USB devices such as external game pads, pointing devices, keyboards and/or speakers. In order to connect a USB device follow these easy steps: *(See figure 2-6 on page 14 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

CAUTION

Due to the ongoing changes in USB technology and standards, not all USB devices and/or drivers are guaranteed to work.

POINT

Windows NT 4.0 does not support USB devices at this time.

INFRARED PORT

The Infrared IrDA 1.1 (4Mbps) port allows for wireless data transfer between your notebook and other IrDA-compatible devices, such as another computer or a printer, without the use of a cable. *(See figure 2-4 on page 12 for location)*

It is important to keep in mind that while carrying out this form of communication, both devices must be placed so their infrared ports are directly facing each other without obstruction. The devices must also be separated by at least 6" but no more than 36" for maximum performance.

The following conditions may interfere with infrared communications:

- A television, radio remote control unit, or a wireless headphone is being used nearby.
- Direct sunlight, fluorescent light, or incandescent light shines directly on the port.

CAUTION

Do not move either device while communication is active as it may interrupt data transmission.

CAUTION

Be careful not to scratch the infrared port lens. Scratches, dirt, or other surface marks can degrade operation.

POINT

With Windows 98, you can use the Infrared Recipient application for infrared file transfers. LapLink Professional software can also be used for infrared file transfers.

WIRELESS INFRARED MOUSE PORT

The Wireless Infrared Mouse Port allows you to use a wireless, Infrared Mouse (IR Mouse). The IR Mouse communicates directly with the IR Mouse port without the use of a cable. *(See figure 2-3 on page 10 for location)*

MICROPHONE JACK

The microphone jack allows you to connect an external mono microphone. Your microphone must be equipped with a 1/8"(3.5 mm) mono mini-plug in order to fit into the microphone jack of your notebook. In order to connect a microphone follow these easy steps: *(See figure 2-3 on page 10 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

STEREO LINE-IN JACK

The stereo line-in jack allows you to connect an external audio source to your notebook, such as an audio cassette player. Your audio device must be equipped with a 1/8" (3.5 mm) stereo mini-plug in order to fit into the stereo line-in jack of your notebook. In order to connect a external audio source follow these easy steps: *(See figure 2-3 on page 10 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

POINT

The stereo line-in jack will not support an external microphone.

HEADPHONE JACK

The headphone jack allows you to connect headphones or powered external speakers to your notebook. Your headphones or speakers must be equipped with a 1/8" (3.5 mm) stereo mini-plug. In order to connect headphones or speakers follow these easy steps: *(See figure 2-3 on page 10 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

POINT

If you plug headphones into the headphone jack, you will disable the built-in stereo speakers.

DOCKING PORT

The docking port is used for the connection of your notebook to an optional port replicator or docking station. In order to connect your notebook to one of these devices follow the instructions that came with your docking port. *(See figure 2-6 on page 14 for location)*

CAUTION

Some notebook's have a sliding panel that encloses the ports. The sliding panel can be damaged if it is left open while the notebook is moved.

EXTERNAL MONITOR PORT

The external monitor port allows you to connect an external VGA or SVGA monitor. In order to connect an external monitor follow these easy steps: *(See figure 2-6 on page 14 for location)*

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
3. Tighten the two hold-down screws, located on each end of the connector.

CAUTION

Pressing the [FN] + [F10] keys allows you to change your selection of where to send your display video. Each time you press the key combination, you will step to the next choice, starting with the built-in display panel only, moving to the external monitor only, finally moving to both the built-in display panel and an external monitor.

EXTERNAL FLOPPY DISK DRIVE PORT

The external floppy disk drive port is used for attaching an optional external floppy disk drive or an optional modular floppy disk drive with the optional floppy cable. In order to connect a external floppy disk drive to your notebook follow the instructions that came with your external floppy disk drive. *(See figure 2-6 on page 14 for location)*

Section Five
Troubleshooting

Troubleshooting

Identifying the Problem 73
Specific Problems 73
Troubleshooting Table 74
Power On Self Test Messages 83
Emergency DVD/CD-ROM Tray Release 85
Modem Result Codes 85
Recovery CD-ROM 86

Troubleshooting

Your Fujitsu LifeBook Series notebook is sturdy and subject to few problems in the field. However, you may encounter simple setup or operating problems that you can solve on the spot, or problems with peripheral devices, that you can solve by replacing the device. The information in this section helps you isolate and resolve some of these straightforward problems and identify failures that require service.

IDENTIFYING THE PROBLEM

If you encounter a problem, go through the following procedure before pursuing complex troubleshooting:

1. Turn off your notebook.
2. Make sure the AC adapter is plugged into your notebook and to an active AC power source.
3. Make sure that any card installed in the PC Card slot is seated properly. You can also remove the card from the slot, thus eliminating it as a possible cause of failure.
4. Make sure that any devices connected to the external connectors are plugged in properly. You can also disconnect such devices, thus eliminating them as possible causes of failure.
5. Turn on your notebook. Make sure it has been off at least 10 seconds before you turn it on.
6. Go through the boot sequence.
7. If the problem has not been resolved, refer to the Troubleshooting Table, that follows, for more detailed troubleshooting information.

POINT

If you keep notes about what you have tried, your support representative may be able to help you more quickly by giving additional suggestions over the phone.

CAUTION

Do not return a failed notebook to your supplier until you have talked to a support representative.

8. If you have tried the solutions suggested in the Troubleshooting Table without success, contact your support representative:

   Toll free: 1-800-8FUJITSU (1-800-838-5487)
   Fax: 1-901-259-5700
   E-mail: 8fujitsu@fpc.fujitsu.com
   Web site: http://www.8fujitsu.com.

Before you place the call, you should have the following information ready so that the customer support representative can provide you with the fastest possible solution:

- Product name
- Product configuration number
- Product serial number
- Purchase date
- Conditions under which the problem occurred
- Any error messages that have occurred
- Hardware configuration
- Type of device connected, if any

See the Configuration Label on the bottom of your notebook for configuration and serial numbers. *(See figure 2-7 on page 15 for location)*

SPECIFIC PROBLEMS

Using PC-Doctor

PC-Doctor is a diagnostic program by Watergate Software, Inc. which comes pre-installed on your notebook. If you are an experienced computer user you may find it useful, however, it is intended primarily to help your Fujitsu support representative better serve you. When you call for help, your support representative may ask you to setup your notebook for modem operation. You will be told what to do step by step, and then asked to hang up the phone and plug your phone line into the back of your notebook. Your support representative will then use the service computer to call your notebook and perform diagnostic tests to find the nature of you problem. Messages will be displayed on the screen explaining what is being done and any further instructions that you may need.

Using the Troubleshooting Table

When you have problems with your notebook, try to find the symptoms under the Problem column of the troubleshooting table for the feature giving you difficulty. You will find a description of common causes for that symptom under the column Possible Cause and what, if anything, you can do to correct the condition under Possible Solutions. All possible causes or solutions may not apply to your notebook.

TROUBLESHOOTING TABLE

Problem	Page
Audio Problems	74
DVD/CD-ROM Drive Problems	74
Docking Problems	75
Floppy Disk Drive Problems	75
Hard Drive Problems	76
Keyboard or Mouse Problems	76
Memory Problems	77
Modem Problems	77
Parallel, Serial and USB Device Problems	77
PC Card Problems	78
Power Failures	78
Shutdown and Startup Problems	80
Video Problems	81
Miscellaneous Problems	83

Problem	Possible Cause	Possible Solutions
Audio Problems		
There is no sound coming from the built-in speakers.	The volume is turned too low.	Adjust the volume control on your notebook.
	The software volume control is set too low.	Adjust the sound volume control settings in your software, operating system and applications.
	Headphones are plugged into your notebook.	Plugging in headphones disables the built-in speakers, remove the headphones.
	BIOS audio settings are incorrect.	Set the BIOS setup utility to the default values within the Multimedia Device Configuration menu. *(See BIOS Setup Utility on page 41 for more information)*
	Software driver is not configured correctly.	Refer to your application and operating system documentation for help.
DVD/CD-ROM Drive Problems		
Notebook fails to recognize DVD/CDs.	Protective sheet is still in the DVD/CD-ROM drive tray.	Remove the protective sheet and replace DVD/CD in tray.
	DVD/CD is not pushed down onto raised center circle of the drive.	Open DVD/CD-ROM tray and re-install DVD/CD properly.
	DVD/CD-ROM tray is not latched shut.	Push on the front of the DVD/CD-ROM tray until it latches.
	Setup utility is set to something other than DVD/CD-ROM or Auto for the Secondary Master Controller.	Revise BIOS settings for the Secondary Master Controller. *(See BIOS Setup Utility on page 41 for more information)*

Problem	Possible Cause	Possible Solutions
Notebook fails to recognize DVD/CDs. (continued)	Wrong drive designator was used for DVD/CD in the application.	Verify the drive designator used by the application is the same as the one used by the operating system. When the operating system is booted from a DVD/CD, drive designations are automatically adjusted.
	Windows DVD/CD auto insertion function is disabled.	Start the DVD/CD from the desktop or application software or re-enable the Windows DVD/CD auto insertion function. *(See Automatic Insertion Function on page 60 for more information)*
	DVD/CD is dirty or defective.	Wipe DVD/CD with a non-abrasive CD cleaning cloth and reinsert. It if still will not work try another DVD/CD in the drive.
The DVD/CD-ROM Access indicator on the Status Indicator Panel blinks at regular intervals when no DVD/CD is in the tray or the DVD/CD-ROM drive is not installed.	The Windows DVD/CD auto insertion function is active and is checking to see if a DVD/CD is ready to run.	This is normal. However, you may disable this feature. *(See Automatic Insertion Function on page 60 for more information)*
Docking Problems		
Notebook does not turn on when installed in Docking Station.	LANdock AC adapter is not plugged in.	Provide power to the LANdocking Station.
	Notebook is not properly seated in the LANdock.	Remove and re-dock your notebook and verify that the Docked LED illuminates.
Floppy Disk Drive Problems		
You cannot access your floppy disk.	You tried to write to a write protected floppy disk.	Eject the floppy disk and set it to write enable. *(See SuperDisk™ 120 or Floppy Disk Drive on page 53 for more information)*
	Floppy disk is not loaded correctly.	Eject floppy disk, check orientation and re-insert. *(See SuperDisk™ 120 or Floppy Disk Drive on page 53 for more information)*
	BIOS setup utility states `Diskette Controller: Disabled`.	Revise the setup utility Main menu settings to enable Diskette Controller. *(See BIOS Setup Utility on page 41 for more information)*
	The floppy disk drive may not be properly installed.	Remove and re-install your floppy disk drive. *(See Flexible Bay Devices on page 26 for more information)*
	Security is set to protect access to floppy disk data.	Verify your password and security settings.

Problem	Possible Cause	Possible Solutions
Hard Drive Problems		
You cannot access your hard drive.	The setup utility is incorrectly set for your internal (Primary Master) or optional second hard drive (Primary Slave).	Revise BIOS settings to set both Primary Master and Primary Slave correctly. *(See BIOS Setup Utility on page 41 for more information)*
	The wrong drive designator was used by an application when a bootable CD-ROM was used to start the notebook.	Verify drive designator used by application is in use by the operating system. When the operating system is booted from a CD, drive designations are automatically adjusted.
	Security is set so your operating system cannot be started without a password.	Verify your password and security settings.
Keyboard or Mouse Problems		
The built-in keyboard does not seem to work.	The notebook has gone into Suspend mode.	Push the **Suspend/Resume** button.
	Your application has locked out your keyboard.	Try to use your intergrated pointing device to restart your system. If this fails, turn your notebook off using the power switch, wait 10 seconds or more, and then turn it back on.
You have installed an external keyboard or mouse, and it does not seem to work.	Your external device is not properly installed.	Re-install your device. *(See Device Ports on page 67 for more information)*
	Your operating system software is not setup with the correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.
	Your mouse or keyboard is connected to the wrong PS/2 port on the LANdock.	Plug the mouse into the PS/2 Mouse port and the external keyboard or numeric key pad into the PS/2 Keyboard port. *(See Device Ports on page 67 for more information)*
You have connected an external keyboard or a mouse and it seems to be locking up the system.	Your operating system software is not setup with the correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.
	Your system has crashed.	Try to restart your notebook. If that fails, turn off the power using the power switch, wait at least 10 seconds, and then power on.

Problem	Possible Cause	Possible Solutions
Memory Problems		
Your Power On screen, or Main menu of the BIOS setup utility information, does not show the correct amount of installed memory.	Your memory upgrade module is not properly installed.	Remove and re-install your memory upgrade module. *(See Memory Upgrade Module on page 65 for more information)*
	You have a memory failure.	Check for Power On Self Test (POST) messages. *(See Power On Self Test Messages on page 83 for more information)*
Modem Problems		
Messages about modem operation.	Messages about modem operation are generated by whichever modem application is in use.	See your application software documentation for additional information.
Parallel, Serial, and USB Device Problems		
You have installed a parallel port device, a serial port device or a USB device. Your notebook does not recognize the device, or the device does not seem to work properly.	The device is not properly installed.	Remove and re-install the device. *(See Device Ports on page 67 for more information)*
	The device may have been installed while an application was running, so your notebook is not aware of its installation.	Close the application and restart your notebook.
	Your software may not have the correct software driver active.	See your software documentation and activate the correct driver.
	You may have the wrong I/O address selected for your device.	See your device documentation and software documentation to determine the required I/O address. Change the settings in the BIOS setup utility. *(See BIOS Setup Utility on page 41 for more information)*
	Your device and another device are assigned the same I/O address.	Check all I/O addresses located within the BIOS setup utility and any other installed hardware or software to make sure there are no duplications.
	Parallel port is set to output only.	Check parallel port setting in the BIOS and set to bi-directional or ECP.

Problem	Possible Cause	Possible Solutions
PC Card Problems		
A card inserted in the PC Card slot does not work or is locking up the system.	The card is not properly installed.	Remove and re-install the card. *(See PC Cards on page 63 for more information)*
	The card may have been installed while an application was running, so your notebook is not aware of its installation.	Close the application and restart your notebook.
	Your software may not have the correct software driver active.	See your software documentation and activate the correct driver.
	You may have the wrong I/O address selected for your PC Card device.	See your PC Card documentation to determine the required I/O address. Change the settings in the BIOS. *(See BIOS Setup Utility on page 41 for more information)*
	Your PC Card device and another device are assigned the same I/O address.	Check all I/O addresses located within the BIOS setup utility and any other installed hardware or software to make sure there are no duplications.
Power Failures		
You turn on your notebook and nothing seems to happen.	The installed primary battery is completely discharged, there is no optional second battery installed or there is no Power adapter (AC or Auto/ Airline) installed.	Check the Status Indicator Panel to determine the presence and condition of the batteries. *(See Status Indicator Panel on page 16 for more information)* Install a charged battery or a Power adapter.
	The primary battery is installed but is faulty.	Use the Status Indicator panel to verify the presence and condition of the batteries. *(See Status Indicator Panel on page 16 for more information)* If a battery is indicating a short, remove that battery and operate from another power source or replace that battery.
	The battery or batteries are low.	Check the Status Indicator Panel to determine the presence and condition of the batteries. *(See Status Indicator Panel on page 16 for more information)* Use a Power adapter to operate until a battery is charged or install a charged battery.
	The power adapter (AC or auto/airline) is not plugged in properly.	Verify that your adapter is connected correctly. *(See Power Sources on page 39 for more information)*

Problem	Possible Cause	Possible Solutions
You turn on your notebook and nothing seems to happen. (continued)	The Power adapter (AC or auto/airline) has no power from the AC outlet, airplane seat jack, or the car's cigarette lighter.	Move the AC cord to a different outlet, check for a line switch or tripped circuit breaker for the AC outlet. If you are using an auto/airline adapter in a car make sure the ignition switch is in the On or Accessories position.
	The Power adapter (AC or auto/airline) is faulty.	Try a different Power adapter or install a charged optional second battery.
	Power switch is not in the On position.	Slide your power switch firmly to the Off position, pause 10 seconds or more and then firmly to the On position.
Your notebook turns off all by itself.	The power management parameters are set for auto timeouts which are too short for your operating needs.	Press any button on the keyboard, or move the mouse to restore operation. If that fails, push the Suspend/Resume button. Check your power management settings, or close your applications and go to the Power Savings menu of the setup utility to adjust the timeout values to better suit your operation needs.
	You are operating on battery power only and have ignored a low battery alarm until the batteries are all at the dead battery state and your machine has gone into Dead Battery Suspend mode.	Install a power adapter and then push the Suspend/Resume button. *(See Power Sources on page 39 for more information)*
	You have a battery failure.	Verify the condition of the batteries using the Status Indicator panel, and replace or remove any batteries that are shorted. *(See Status Indicator Panel on page 16 for more information)*
	Your power adapter has failed or lost its power source.	Make sure the adapter is plugged in and the outlet has power.
Your notebook will not work on battery alone.	The installed batteries are dead.	Replace the battery with a charged one or install a Power adapter.
	No batteries are installed.	Install a charged battery.
	The batteries are improperly installed.	Verify that the batteries are properly connected by re-installing them.
	Your installed batteries are faulty.	Verify the condition of the batteries using the Status Indicator panel and replace or remove any batteries that are shorted. *(See Status Indicator Panel on page 16 for more information)*

Problem	Possible Cause	Possible Solutions
The batteries seem to discharge too quickly.	You are running an application that uses a great deal of power due to frequent hard drive access or DVD/CD-ROM access, use of a modem card or a LAN PC card.	Use both the primary battery and an optional second battery and/or use a power adapter for this application when at all possible.
	The power savings features may be disabled.	Check the power management and/or setup utility settings in the Power Savings menu and adjust according to your operating needs.
	The brightness is turned all the way up.	Turn down the brightness adjustment. The higher the brightness the more power your display uses.
	The batteries are very old.	Replace the batteries.
	The batteries have been exposed to high temperatures.	Replace the batteries.
	The batteries are too hot or too cold.	Restore the notebook to normal operating temperature. The Charging icon on the Status Indicator panel will flash when the battery is outside its operating range.
Shutdown and Startup Problems		
The Suspend/Resume button does not work.	The Suspend/Resume button is disabled from the Advanced submenu of the Power menu of the setup utility.	Enable the button from the setup utility.
	You did not hold the button in long enough.	Hold the button longer. This may need to be a few seconds if your application is preventing the CPU from checking for button pushes.
	There may be a conflict with the application software.	Close all applications and try the button again.
The system powers up, and displays power on information, but fails to load the operating system.	The boot sequence settings of the setup utility are not compatible with your configuration.	Set the operating source by pressing the [ESC] key while the Fujitsu logo is on screen or use the [F2] key and enter the setup utility and adjust the source settings from the Boot menu. *(See BIOS Setup Utility on page 41 for more information)*
	You have a secured system requiring a password to load your operating system.	Make sure you have the right password. Enter the setup utility and verify the Security settings and modify them as accordingly. *(See BIOS Setup Utility on page 41 for more information)*

Problem	Possible Cause	Possible Solutions
The system powers up, and displays power on information, but fails to load the operating system. (continued)	Internal hard drive was not detected.	Use the BIOS setup utility or Primary Master submenu, located within the Main menu, to try to auto detect the internal hard drive.
An error message is displayed on the screen during the notebook (boot) sequence.	Power On Self Test (POST) has detected a problem.	See the Power On Self Test (POST) messages to determine the meaning and severity of the problem. Not all messages are errors; some are simply status indicators. *(See Power On Self Test Messages on page 83 for more information)*
Your notebook appears to change setup parameters when you start it.	BIOS setup changes were not saved when you made them and exited the BIOS setup utility returning it to previous settings.	Make sure you select **Save Changes And Exit** when exiting the BIOS setup utility.
	The BIOS CMOS hold-up battery has failed.	Contact your support representative for repairs. This is not a user serviceable part but has a normal life of 3 to 5 years.
Video Problems		
The built-in display is blank when you turn on your notebook.	Something is pushing on the Closed Cover switch.	Clear the Closed Cover switch. *(See figure 2-3 on page 10 for location)*
	The notebook is set for an external monitor only.	Pressing [F10] while holding down the [FN] key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order are: built-in display only, external monitor only, both built-in display and external monitor.
	The angle of the display and the brightness settings are not adequate for your lighting conditions.	Move the display and the brightness control until you have adequate visibility.
	The power management time-outs may be set for very short intervals and you failed to notice the display come on and go off again.	Press any button the keyboard, or move the mouse to restore operation. If that fails, push the Suspend/ Resume button. (The display may be shut off by Standy mode, Auto Suspend or Video Timeout)
The notebook turned on with a series of beeps and your built-in display is blank.	Power On Self Test (POST) has detected a failure which does not allow the display to operate.	Contact your support representative.

Problem	Possible Cause	Possible Solutions
The display goes blank by itself after you have been using it.	The notebook has gone into Video timeout, Standby mode, Suspend mode or Save-to-Disk mode because you have not used it for a period of time.	Press any button on the keyboard, or move the mouse to restore operation. If that fails, push the Suspend/Resume button. Check your power management settings, or close your applications and go to the Power Savings menu of the setup utility to adjust the timeout values to better suit your operation needs. *(See BIOS Setup Utility on page 41 for more information)*
	Something is pushing on the Closed Cover switch.	Check the Closed Cover switch. *(See figure 2-3 on page 10 for location)*
	The power management time-outs may be set for very short intervals and you failed to notice the display come on and go off again.	Press any button on the keyboard, or move the mouse to restore operation. If that fails, push the Suspend/ Resume button. (The display may be shut off by Standby Mode, Auto Suspend or Video Timeout)
The Built-in Display does not close.	A foreign object, such as a paper clip, is stuck between the display and the keyboard.	Remove all foreign objects from the keyboard.
The Built-in Display has bright or dark spots.	If the spots are very tiny and few in number, this is normal for a large LCD display.	This is normal; do nothing.
	If the spots are numerous or large enough to interfere with your operation needs.	Display is faulty; contact your support representative.
The application display uses only a portion of your screen and is surrounded by a dark frame.	You are running an application that does not support 800 x 600 pixel resolution display and display compression is enabled.	Display compression gives a clearer but smaller display for applications that do not support 800 x 600 pixel resolution. You can fill the screen but have less resolution by changing your display compression setting, (See the Video Features submenu, located within the Advanced menu of the BIOS. *(See BIOS Setup Utility on page 41 for more information)*

Problem	Possible Cause	Possible Solutions
You have connected an external monitor and it does not display any information.	Your BIOS setup is not set to enable your external monitor.	Try toggling the video destination by pressing [FN] and [F10] together, or check your BIOS setup and enable your external monitor. (See the Video Features submenu, located within the Advanced Menu of the BIOS. *(See BIOS Setup Utility on page 41 for more information)*
	Your external monitor is not properly installed.	Reinstall your device. *(See External Monitor Port on page 69 for more information)*
	Your operating system software is not setup with the correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.
You have connected an external monitor and it does not come on.	Your external monitor is not compatible with your notebook.	See your monitor documentation and the External Monitor Support portions of the Specifications section on page 97.
Miscellaneous Problems		
An error message is displayed on the screen during the operation of an application.	Application software often has its own set of error message displays.	See your application manual and help displays screens for more information. Not all messages are errors some may simply be status.

POWER ON SELF TEST MESSAGES

The following is an alphabetic list of error-and-status messages that Phoenix BIOS and/or your operating system can generate and an explanation of each message. Error messages are marked with an *. The most common errors are marked with a #. If an error message is displayed that is not in this list, write it down and check your operating system documentation both on screen and in the manual. If you can find no reference to the message and its meaning is not clear, contact your support representative for assistance.

nnnn Cache SRAM Passed

Where nnnn is the amount of system cache in kilobytes success-fully tested by the Power On Self Test. (This can only appear if you have an SRAM PC Card installed.)

*Diskette drive A error or Diskette drive B error

Drive A: or B: is present but fails the BIOS Power On Self Test diskette tests. Check to see that the drive is defined with the proper diskette type in the Setup Utility, *(See BIOS Setup Utility on page 41 for more information)* and that the diskette drive is installed correctly. If the disk drive is properly defined and installed, avoid using it and contact your support representative.

*Extended RAM Failed at offset: nnnn

Extended memory not working or not configured properly. If you have an installed memory upgrade module, verify that the module is properly installed. If it is properly installed, you may want to check your Windows Setup to be sure it is not using unavailable memory until you can contact your support representative.

nnnn Extended RAM Passed

Where nnnn is the amount of memory in kilobytes successfully tested.

*Failing Bits: nnnn The hex number nnnn

This is a map of the bits at the memory address (in System, Extended, or Shadow memory) which failed the memory test. Each 1 (one) in the map indicates a failed bit. This is a serious fault that may cause you to lose data if you continue. Contact your support representative.

***Fixed Disk x Failure or Fixed Disk Controller Failure (where x = 1-4)**
The fixed disk is not working or not configured properly. This may mean that the hard drive type identified in your setup utility does not agree with the type detected by the Power On Self Test. Run the setup utility to check for the hard drive type settings and correct them if necessary. If the settings are OK and the message appears when you restart the system, there may be a serious fault which might cause you to lose data if you continue. Contact your support representative.

***Incorrect Drive A type – run SETUP**
Type of floppy drive A: not correctly identified in Setup. This means that the floppy disk drive type identified in your setup utility does not agree with the type detected by the Power On Self Test. Run the setup utility to correct the inconsistency.

***Incorrect Drive B type – run SETUP**
Type of floppy drive B: not correctly identified in Setup. This means that the floppy disk drive type identified in your setup utility does not agree with the type detected by the Power On Self Test. Run the setup utility to correct the inconsistency.

***Invalid NVRAM media type**
Problem with NVRAM access. In the unlikely case that you see this message you may have some display problems. You can continue operating but should contact your support representative for more information.

***Keyboard controller error**
The keyboard controller test failed. You may have to replace your keyboard or keyboard controller but may be able to use an external keyboard until then. Contact your support representative.

***Keyboard error**
Keyboard not working. You may have to replace your keyboard or keyboard controller but may be able to use an external keyboard until then. Contact your support representative.

***Keyboard error nn**
BIOS discovered a stuck key and displays the scan code for the stuck key. You may have to replace your keyboard but may be able to use an external keyboard until then. Contact your support representative.

***Monitor type does not match CMOS – Run SETUP**
Monitor type not correctly identified in Setup. This error probably means your BIOS is corrupted, run the setup utility and set all settings to the default conditions. If you still get this error, contact your support representative.

#*Operating system not found
Operating system cannot be located on either drive A: or drive C: Enter the setup utility and see if both the fixed disk, and drive A: are properly identified and that the boot sequence is set correctly. Unless you have changed your installation greatly, the operating system should be on drive C:. If the setup utility is correctly set, your hard drive may be corrupted and your system may have to be re-installed from your back up media.

***Parity Check 1 nnnn**
Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????. This is a potentially data destroying failure. Contact your support representative.

***Parity Check 2 nnnn**
Parity error found in the I/O bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????. This is a potentially data destroying failure. Contact your support representative.

#*Press <F1> to resume, <F2> to SETUP
Displayed after any recoverable error message. Press the [F1] key to continue the boot process or the [F2] key to enter Setup and change any settings.

#*Previous boot incomplete – Default configuration used
Previous Power On Self Test did not complete successfully. The Power On Self Test will load default values and offer to run Setup. If the previous failure was caused by incorrect values and they are not corrected, the next boot will likely fail also. If using the default settings does not allow you to complete a successful boot sequence, you should turn off the power with the Power Switch and contact your support representative.

***Real time clock error**
Real-time clock fails BIOS test. May require board repair. Contact your support representative.

***Shadow RAM Failed at offset: nnnn**
Shadow RAM failed at offset nnnn of the 64k block at which the error was detected. You are risking data corruption if you continue. Contact your support representative.

nnnn Shadow RAM Passed
Where nnnn is the amount of shadow RAM in kilobytes successfully tested.

***System battery is dead – Replace and run SETUP**
The BIOS CMOS RAM memory hold up battery is dead. This is part of your BIOS and is a board mounted battery which requires a support representative to change. You can continue operating but you will have to use setup utility default values or reconfigure your setup utility every time you turn off your notebook. This battery has an expected life of 2 to 3 years.

System BIOS shadowed
System BIOS copied to shadow RAM.

***System CMOS checksum bad – run SETUP**
BIOS CMOS RAM has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in BIOS memory. Run Setup and reconfigure the system.

***System RAM Failed at offset: nnnn**
System memory failed at offset nnnn of in the 64k block at which the error was detected. This means that there is a fault in your built-in memory. If you continue to operate, you risk corrupting your data. Contact your support representative for repairs.

nnnn System RAM Passed
Where nnnn is the amount of system memory in kilobytes successfully tested.

***System timer error**
The timer test failed. The main clock that operates the computer is faulty. Requires repair of system board. Contact your support representative for repairs.

UMB upper limit segment address: nnnn
Displays the address of the upper limit of Upper Memory Blocks, indicating released segments of the BIOS memory which may be reclaimed by a virtual memory manager.

Video BIOS shadowed
Video BIOS successfully copied to shadow RAM.

EMERGENCY DVD/CD-ROM TRAY RELEASE

If for some reason the eject button fails, you can open the DVD/CD-ROM tray with a paper clip or similar tool inserted into the eject hole in the far right side of the front of the tray. Straighten one side of a paper clip and push it gently into the hole. The tray will pop out a short distance.

MODEM RESULT CODES

The operating system and application software that is factory installed detects the modem characteristics and provides the necessary command strings to operate the modem. The internal modem operation is controlled by generic AT commands from the operating system and application software. The standard long form result codes may, in some cases, be displayed on your screen to keep you informed of the actions of your modem. The operating system and application software may suppress display of the result codes.

Examples of result codes are:

- OK
- NO CARRIER
- NO DIALTONE
- CONNECT 53000 (Connection complete at 53,000 bps.)
- ERROR
- FAX
- RING (This means an incoming call.)
- BUSY
- NO ANSWER

When using the internal modem with applications that are not factory installed refer to the application documentation.

RECOVERY CD-ROM

Included with your notebook are the Emergency Recovery CD and Drivers and Application Restore CD.

The Emergency Recovery CD contains the following:

- A backup copy of the software originally installed on your Fujitsu LifeBook (can only be used on the listed LifeBook models).

The Drivers and Application Restore CD contains the following:

- Sets of device drivers and Fujitsu utilities (in specific directories) that are unique to your notebook configuration for use as documented below.
- Read-me files that provide additional use information for items on this CD-ROM.

POINT

If you have access to the internet, visit the Fujitsu PC Corporation Support Web site at www.8fujitsu.com to check for the most current information, drives and hints on how to perform recovery and system updates.

Restoring Your Pre-installed Software from CD-ROM

The Emergency Recovery CD-ROM enables restoration of your notebook disk drive contents as they were originally shipped from the factory. Most often this is necessary if files or software programs (only those files/programs that came pre-installed) become corrupt or accidentally erased.

You have two options available when performing recovery:

1. Recover Hard Drive without Format. This choice replaces all the original factory installed files and program structures without eliminating your data files. You will have to re-install any software that was not included with the computer when you bought it, however you data will be intact as long as the installation of the additional programs is performed in the same manner.
2. Format and Recover Hard Drive. This choice removes all the information on the hard disk. If you choose this option, you will lose any software you have installed and any other files you created since you setup your computer. You will have to re-install any software that was not included with the computer when you bought it.

POINT

It is recommended that you back-up all data files prior to performing either of the recovery options.

POINT

Make certain you have your Operating System Product ID # available (from the Certificate of Authenticity) prior to performing recovery. Once the process is complete and you re-start your notebook, you will be required to perform all the setup steps as when the computer was first purchased. *(See Booting the System with Windows 98 on page 42 for more information)*

CAUTION

User data and user installed software CAN NOT be recovered from the Emergency Recovery CD.

To Run the Emergency Recovery Program

To use this portion of the CD-ROM, your notebook must Boot up (upon power up or full system reset/restart) from the CD-ROM drive.

1. Insert the Emergency Recovery CD in the CD-ROM drive.
2. If your notebook is running when you insert the CD, exit your operating system and power down the notebook.
3. Start (power up) your notebook.
4. At this point, you must either change your BIOS setup configuration through the [F2] key to have the computer boot from the CD-ROM "first" (if you have not previously done so), or you can use the [ESC] key during this boot-up sequence and select the CD-ROM from the menu that will appear. *(See BIOS Setup Utility on page 41 for more information)*

5. If correctly configured to boot from the Recovery CD-ROM, you will notice your system running a full virus scan of the hard drive and then reach the Emergency Recovery Welcome screen. If this is not what is displayed, check to see that the Recovery CD is installed in the CD-ROM drive and repeat the previous steps, starting with 2. If you received a message "This program may not be used on your computer" you are using the wrong Recovery CD for the model of notebook. Contact Fujitsu PC Service and Support to obtain the correct CD.
6. Read the information displayed on the Welcome screen, then click OK.
7. Select one of the two icons displayed in the Emergency Recovery menu and follow the instructions.
8. When recovery is complete, remove the Recovery CD, replace it in its sleeve and store it in a safe location (with your Operating System Manual/ Certificate of Authenticity).
9. Restart your notebook.
10. Reset your boot device priority in the BIOS setup as desired.

Your notebook now has all of the software installed that was included when you received it from the factory. You must now load any programs which you purchased and installed after you received your notebook. If you chose the Format and Recover Hard Drive option, you should now restore your data files. If you performed the Recover Hard Drive without Format, your data files will still exist (within their original directory structures).

POINT

As long as there is no bootable disk in the CD-ROM drive or the floppy disk drive, your notebook will boot from the hard drive regardless of the BIOS Boot Device Priority setting.

Drivers and Applications Restore CD

The Drivers and Application CD can be used to selectively re-install drivers and/or applications that may have been un-installed or corrupted. Please refer to installation instructions located in the Drivers and Applications Restore CD. You can also consult our Web site at www.8fujitsu.com.

POINT

Look for and open files with the extensions.DOC and .TXT.

Section Six
Care and Maintenance

Care and Maintenance

LifeBook Series Notebook. 91
Batteries 92
Floppy Disks and Drives 92
DVDs and CDs 93
PC Cards 93

Care and Maintenance

If you use your LifeBook Series notebook from Fujitsu carefully, you will increase its life and reliability. This section provides some tips for looking after the notebook and its devices.

CAUTION

Electrical equipment may be hazardous if misused. Operations of this product or similar products, must always be supervised by an adult. Do not allow children access to the interior of any electrical products and do not permit them to handle any cables.

LIFEBOOK SERIES NOTEBOOK

Caring for your LifeBook Series Notebook

- Your LifeBook Series notebook is a durable but sensitive electronic device. Treat it with respect and care.
- Make a habit of transporting it in a suitable carrying case.
- Do not attempt to service the computer yourself. Always follow installation instructions closely.
- Keep it away from food and beverages.
- If you accidentally spill liquid on your notebook:
  1. Turn it off.
  2. Position it so that the liquid can run out.
  3. Let it dry out for 24 hours, or longer if needed.
  4. If your notebook will not boot after it has dried out, call your support representative.
- Do not use your LifeBook Series notebook in a wet environment (near a bathtub, swimming pool).
- Always use the AC adapter and batteries that are approved for your notebook.
- Avoid exposure to sand, dust and other environmental hazards.
- Do not expose your LifeBook Series notebook to direct sunlight for long periods of time as temperatures above 140° F (60° C) may damage your notebook.
- Keep the covers closed on the connectors and slots when they are not in use.
- Do not put heavy or sharp objects on the computer.
- If you are carrying your LifeBook Series notebook in a briefcase, or any other carrying case, make sure that there are no objects in the case pressing on the lid.
- Do not drop your LifeBook Series notebook.
- Do not touch the screen with any sharp objects.

Cleaning your LifeBook Series Notebook

- Always disconnect the power plug. (Pull the plug, not the cord.)
- Clean your LifeBook Series notebook with a damp, lint-free cloth. Do not use abrasives or solvents.
- Use a soft cloth to remove dust from the screen. Never use glass cleaners.

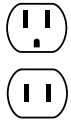
Storing your LifeBook Series Notebook

- If storing your notebook for a month or longer, turn your LifeBook Series notebook off and remove all Lithium Ion batteries.
- Store your LifeBook Series notebook and batteries separately. If you store your notebook with a battery installed, the battery will discharge, and battery life will be reduced. In addition, a faulty battery might damage your notebook.
- Store your LifeBook Series notebook in a cool, dry location. Temperatures should remain between -25ºC (13ºF) and 60ºC (140ºF).

Traveling with your LifeBook Series Notebook

- Do not transport your LifeBook Series notebook while it is turned on.
- Do not check your LifeBook Series notebook as baggage. Carry it with you.
- Always bring your System Recovery CD that came with your LifeBook Series notebook when you travel. If you experience system software problems while traveling, you may need it to correct any problems.

- Never put you LifeBook Series notebook through a metal detector. Have your notebook hand-inspected by security personnel. You can however, put your LifeBook Series notebook through a properly tuned X-ray machine. To avoid problems, place your notebook close to the entrance of the machine and remove it as soon as possible or have your notebook hand-inspected by security personnel. Security officials may require you to turn your notebook On. Make sure you have a charged battery on hand.
- When traveling with the hard drive removed, wrap the drive in a non-conducting materials (cloth or paper). If you have the drive checked by hand, be ready to install the drive if needed. Never put your hard drive through a metal detector. Have your hard drive hand-inspected by security personnel. You can however, put your hard drive through a properly tuned X-ray machine.
- Take the necessary plug adapters if you're traveling overseas. Check the following diagram to determine which plug adapter you'll need or ask your travel agent.

Outlet Type	Location
	United States, Canada, parts of Latin America, Japan, Korea, the Philippines, Taiwan
	Russia and the Commonwealth of Independent States (CIS), most of Europe, parts of Latin America, the Middle East, parts of Africa, Hong Kong, India, most of South Asia
	Mexico, United Kingdom, Ireland, Malaysia, Singapore, parts of Africa
	China, Australia, New Zealand

BATTERIES

Caring for your Batteries

- Always handle batteries carefully.
- Do not short-circuit the battery terminals (that is, do not touch both terminals with a metal object). Do not carry lose batteries in a pocket or purse where they may mix with coins, keys, or other metal objects. Doing so may cause an explosion or fire.
- Do not drop, puncture, disassemble, mutilate or incinerate the battery.
- Recharge batteries only as described in this manual and only in ventilated areas.
- Do not leave batteries in hot locations for more than a day or two. Intense heat can shorten battery life.
- Do not leave a battery in storage for longer than 6 months without recharging it.

Increasing Battery Life

- Power your LifeBook Series notebook through the AC or optional auto/airline adapter whenever possible.
- If your LifeBook Series notebook is running on battery power all day, connect it to the AC adapter overnight to recharge the battery.
- Keep brightness to the lowest level comfortable.
- Set the power management for maximum battery life.
- Put your LifeBook Series notebook in Suspend mode when it is turned on and you are not actually using it.
- Limit your DVD/CD-RW/CD-ROM access.
- Disable the Windows CD automatic insertion function.
- Always use fully charged batteries.
- Eject PCMCIA cards when not in use.

FLOPPY DISKS AND DRIVES

Caring for your Floppy Disks

- Avoid using the floppy disks in damp and dusty locations.
- Never store a floppy disk near a magnet or magnetic field.
- Do not use a pencil or an eraser on a disk or disk label.

- Avoid storing the floppy disks in extremely hot or cold locations, or in locations subject to severe temperature changes. Store at temperatures between 50º F (10ºC) and 125ºF (52ºC).
- Do not touch the exposed part of the disk behind the metal shutter.

Caring for your Floppy Disk Drive

- To clean, wipe the floppy disk drive clean with a dry soft cloth, or with a soft cloth dampened with water or a solution of neutral detergent. Never use benzene, paint thinner or other volatile material.
- Avoid storing the floppy disk drive in extremely hot or cold locations, or in locations subject to severe temperature changes. Store at temperatures between 50º F (10ºC) and 125ºF (52ºC).
- Keep the floppy disk drive out of direct sunlight and away from heating equipment.
- Avoid storing the floppy disk drive in locations subject to shock and vibration.
- Never use the floppy disk drive with any liquid, metal, or other foreign matter inside the floppy disk drive or disk.
- Never disassemble or dismantle your floppy disk drive.

DVDs AND CDs

Caring for your DVDs and CDs

DVDs and CDs are precision devices and will function reliably if given reasonable care.

- Always store your DVD/CDs in its case when it is not in use.
- Always handle DVD/CDs by the edges and avoid touching the surface.
- Avoid storing any DVD/CDs in extreme temperatures.
- Do not bend DVD/CDs or set heavy objects on them.
- Do not spill liquids on DVD/CDs.
- Do not scratch DVD/CDs.
- Do not put a label on DVD/CDs.
- Do not get dust on DVD/CDs.
- Never write on the label surface with a ballpoint pen or pencil. Always use a felt pen.
- If a DVD/CD is subjected to a sudden change in temperature, cold to warm condensation may form on the surface. Wipe the moisture off with a clean, soft, lint free cloth and let it dry at room temperature. DO NOT use a hair dryer or heater to dry DVD/CDs.
- If a DVD/CD is dirty, use only a DVD/CD cleaner or wipe it with a clean, soft, lint free cloth starting from the inner edge and wiping to the outer edge.

Caring for your DVD or CD-ROM Drive

Your DVD or CD-ROM drive is durable but you must treat it with care. Please pay attention to the following points:

- The drive rotates the compact disk at a very high speed. Do not carry it around or subject it to shock or vibration with the power on.
- Avoid using or storing the drive where it will be exposed to extreme temperatures.
- Avoid using or storing the drive where it is damp or dusty.
- Avoid using or storing the drive near magnets or devices that generate strong magnetic fields.
- Avoid using or storing the drive where it will be subjected to shock or vibration.
- Do not disassemble or dismantle the DVD or CD-ROM drive.

PC CARDS

Caring for your PC Cards

PC Cards are durable, but you must treat them with care. The documentation supplied with your PC Card will provide specific information, but you should pay attention to the following points:

- To keep out dust and dirt, store PC Cards in their protective sleeves when they are not installed in your notebook.
- Avoid prolonged exposure to direct sunlight or excessive heat.
- Keep the cards dry.
- Do not flex or bend the cards, and do not place heavy objects on top of them.
- Do not force cards into the slot.
- Avoid dropping cards, or subjecting them to excessive vibration.

Section Seven
Specifications

Specifications

Configuration Label 97
Microprocessor. 97
Memory 97
Video 97
Audio 98
Mass Storage Device Options. 98
Features 98
Device Ports 98
Keyboard 99
Power 99
Dimensions and Weight 99
Environmental Requirements 99

Specifications

This section provides the hardware and environmental specifications for your LifeBook E Series notebooks. Specifications of particular configurations will vary.

CONFIGURATION LABEL

Your LifeBook E Series notebook contains a configuration label located on the bottom of your notebook. *(See figure 2-7 on page 15 for location)* This label contains specific information regarding the options you've chosen for your notebook. Following is an example label and information on how to read your own configuration label.

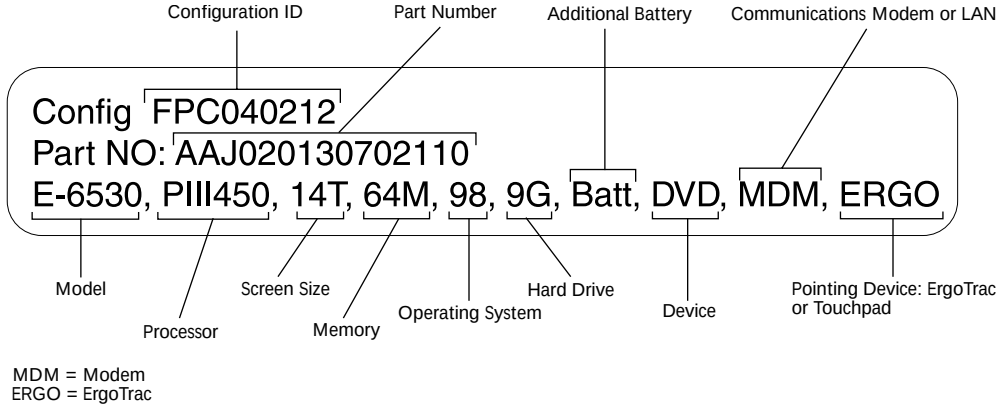


Figure 7-1 Configuration Label

Features	E6530	E5520	E5320	E5140
Processor	**450/500 MHz Pentium III**	**450/500 MHz Pentium III**	**366 MHz Pentium II**	**433 MHz Celeron**
Display	**14.1" TFT**	**13.3" TFT**	**13.3" TFT**	**13.3" TFT**

MICROPROCESSOR

Latest high-speed Intel Mobile PCI bus architecture and CardBus architecture.

MEMORY

System Memory
64MB or 128MB SDRAM

Cache Memory
On-die L2

Expansion Memory Options
Extend system memory up to 256MB

BIOS Memory
512KB Flash ROM.
256 Bytes CMOS-RAM with back-up battery

VIDEO

Built-in color flat-panel TFT active matrix LCD display with simultaneous display capability.

Video Color and Resolution
14.1" XGA TFT

- Internal: 1024 x 768 pixel resolution, 16M colors
- External: 1600 x 1200 pixel resolution, 64k colors Simultaneous Video = Yes (1024 x 768, 64k colors max) XGA, SVGA and VGA compatible

13.3" XGA TFT
- Internal: 1024 x 768 pixel resolution, 16M colors
- External: 1600 x 1200 pixel resolution, 64k colors Simultaneous Video = Yes (1024 x 768, 64k colors max) XGA, SVGA and VGA compatible

Video RAM
4MB Embedded SDRAM

Video
Zoomed Video support via PC Card Slot 1

AUDIO

- SoundBlaster Pro-compatible 32-bit stereo PCM/FM sound chip
- Spatializer 3D-Stereo multiple speaker effect support
- Stereo headphone jack, 1 Vrms, or less, minimum impedance 32 Ohms
- Stereo line in jack, 880 mVrms or less, minimum impedance 10K Ohms
- Mono microphone jack, 125 mVp-p or less, minimum impedance 10K Ohms
- Two built-in speakers, 28 mm diameter (Stereo)
- One built-in monaural microphone

MASS STORAGE DEVICE OPTIONS

Single Flexible Bay devices:

Floppy Disk Drive
Modular 5" Floppy Disk Drive, which accommodates 1.44MB or 720KB floppy disks.

Hard Drive
2.5" fixed IDE hard drive

CD-ROM Drive
Modular, 24x maximum, 5" CD-ROM drive

DVD Drive
Modular 6x maximum 5" DVD drive

CD-RW Drive
Modular 4x maximum 5" CD-RW drive

LS 120 Drive
LS120 Superdisk Drive Modular 5" for 120MB Superdisks

FEATURES

Integrated Pointing Device
ErgoTrac or Touchpad pointing device

Communications
Modem: Internal V.90 standard 56K fax/modem (ITU V.90, 56K data, 14.4K fax)

or

LAN: 10/100 base-T Ethernet

LifeBook Security Application Panel
Security Panel: 4 button security combination for both hardware and software.

One Touch Panel: 4 button application launcher for Internet, e-mail and software while notebook is on state.

Theft Prevention Lock
Lock slot for use with physical restraining security systems. The locking system by Kensington is recommended.

Pre-Installed Software
- Microsoft Windows 98
- Microsoft Internet Explorer
- PMSet 98 by Fujitsu Limited (98)
- McAfee VirusScan by Network Associates, Inc. (All)
- LapLink Professional by Traveling Software (98)
- PC-Doctor by Watergate Software, Inc. (All)
- Adobe Acrobat Reader by Adobe Systems, Inc. (All)
- Netscape Communicator
- AudioRack 32
- LifeBook Security Panel
- LifeBook Application Panel

DEVICE PORTS

- Combination PC Card slot for One Type III/two Type I/II cards: PCMCIA Standard 2.1 with CardBus support; Zoomed Video support via Slot 1
- One 6-pin mini DIN PS/2 compatible connector, for external keyboard, external mouse or external numeric keypad
- One 25-pin D-SUB two-way Centronics type connector for parallel input/output devices; Bi-directional, output only or ECP
- One 240-pin connector for docking devices.
- One 15-pin D-SUB connector for VGA external monitor (see Display specifications)

- One 9-pin D-SUB connector for RS-232C serial input/output devices
- One connector for USB (Universal Serial Bus) input/output devices
- One 25-pin special connector for external floppy disk drive connection
- One modular modem (RJ-11) connector or LAN (RJ-45) connector
- One stereo headphone jack (See Audio specifications)
- One mono microphone jack (See Audio specifications)
- One stereo line-in jack (See Audio specifications)

KEYBOARD

Built-in keyboard with all functions of 87 key PS/2 compatible keyboards.

- Total number of keys: 87
- Function keys: 12, F1 through F12
- Feature extension key: Fn
- Windows keys: 3, two Start keys and an application key
- Key pitch: 19 mm
- Key stroke: 3 mm
- Built-in ErgoTrac or Touchpad pointing device with Left and right buttons

External Keyboard Support
PS/2 compatible

External Numeric Keypad Support
PS/2 compatible

External Mouse Support
PS/2 compatible

Management Standard
DMI 2.0/WFM 1.1a Compliant

POWER

Batteries
Main 9-cell Lithium Ion battery, rechargeable, 10.8V, 3600 mAh

Second 6-cell Lithium Ion battery, rechargeable, 10.8V, 2800 mAh

AC Adapter
Autosensing 100-240V AC, 53W, supplying 16V DC to the notebook, Fujitsu Model FPCAC08 which includes an AC cable.

Power Management
Conforms to APM (Advanced Power Management)

Electro-Static Discharge (ESD)
9 kV

DIMENSIONS AND WEIGHT

Overall Dimensions
Approximately 12.13" x 10.31" x 1.47" (308 mm x 262 mm x 32 mm)

Weights
Approximately 5.86 lbs with Weight Saver

ENVIRONMENTAL REQUIREMENTS

Temperature
Operating: 5° to 35° C (41° to 95° F)
Non-operating: –15° to 60° C (5° to 140° F)

Humidity
Operating: 20% to 85%, relative, non-condensing.
Non-operating; 8% to 85%, relative, non-condensing

Altitude
Operating: 10,000 feet (3,048 m) maximum

Section Eight
Glossary

Glossary

AC Adapter
A device which converts the AC voltage from a wall outlet to the DC voltage needed to power your notebook.

Active-Matrix Display
A type of technology for making flat-panel displays which has a transistor or similar device for every pixel on the screen.

APM
Advanced Power Management.

Auto/Airline Adapter
A device which converts the DC voltage from an automobile cigarette lighter or aircraft DC power outlet to the DC voltage needed to power your notebook.

BIOS
Basic Input-Output System. A program and set of default parameters stored in ROM which tests and operates your notebook when you turn it on until it loads your installed operating system from disk. Information from the BIOS is transferred to the installed operating system to provide it with information on the configuration and status of the hardware.

Bit
An abbreviation for binary digit. A single piece of information which is either a one (1) or a zero (0).

bps
An abbreviation for bits per second. Used to describe data transfer rates.

Boot
To start-up a computer and load its operating system from disk, ROM or other storage media into RAM.

Bus
An electrical circuit which passes data between the CPU and the sub-assemblies inside your notebook.

Byte
8 bits of parallel binary information.

Cache Memory
A block of memory built into the micro-processor which is much faster to access than your system RAM and used in specially structured ways to make your overall data handling time faster.

CardBus
A faster, 32-bit version of the PC Card interface which offers performance similar to the 32-bit PCI architecture.

CD-ROM
Compact disc read only memory. This is a form of digital data storage which is read optically with a laser rather than a magnetic head. A typical CD-ROM can contain about 600MB of data and is not subject to heads crashing into the surface and destroying the data when there is a failure nor to wear from reading.

CMOS RAM
Complementary metal oxide semiconductor random access memory. This is a technology for manufacturing random access memory which requires very low levels of power to operate.

COMM Port
Abbreviation for communication port. This is your serial interface connection.

Command
An instruction which you give your operating system. Example: run a particular application or format a floppy disk.

Configuration
The combination of hardware and software that makes up your system and how it is allocated for use.

CRT
Cathode Ray Tube. A display device which uses a beam of electronic particles striking a luminescent screen. It produces a visual image by varying the position and intensity of the beam.

Data
The information a system stores and processes.

DC
Direct current. A voltage or current that does not fluctuate periodically with time.

Default Value
A preprogrammed value to be used if you fail to set your own.

DIMM
Dual-in-line memory module.

Disk
A spinning platter of magnetic data storage media. If the platter is very stiff it is a hard drive, if it is highly flexible it is a floppy disk, if it is a floppy disk in a hard housing with a shutter it is commonly called a diskette.

Disk Drive
The hardware which spins the disk and has the heads and control circuitry for reading and writing the data on the disk.

Diskette
A floppy disk in a hard housing with a shutter.

DMA
Direct Memory Access. Special circuitry for memory to memory transfers of data which do not require CPU action.

DMI
Desktop Management Interface. A standard that provides PC management applications with a common method of locally or remotely querying and configuring PC computer systems, hardware and software components, and peripherals.

DOS
Disk Operating System (MS-DOS is a Microsoft Disk Operating System).

Driver
A computer program which converts application and operating system commands to external devices into the exact form required by a specific brand and model of device in order to produce the desired results from that particular equipment.

ECP
Extended Capability Port. A set of standards for high speed data communication and interconnection between electronic devices.

ESD
Electro-Static Discharge. The sudden discharge of electricity from a static charge which has built-up slowly. Example: the shock you get from a doorknob on a dry day or the sparks you get from brushing hair on a dry day.

Extended Memory
All memory more than the 640KB recognized by MS-DOS as system memory.

FCC
Federal Communication Commission.

Floppy Disk
A spinning platter of magnetic data storage media which is highly flexible.

GB
Gigabyte.

Hard drive
A spinning platter of magnetic data storage media where the platter is very stiff.

Hexadecimal
A decimal notation for the value of a 4 bit binary number. (0-9, A, B, C, D, E, F) Example: 2F in hexadecimal = 00101111 in binary = 47 in decimal.

I/O
Input/Output. Data entering and leaving your notebook in electronic form.

I/O Port
The connector and associated control circuits for data entering and leaving your notebook in electronic form.

IDE
Intelligent Drive Electronics. A type of control interface for a hard drive which is inside the hard drive unit.

Infrared
Light just beyond the red portion of the visible light spectrum which is invisible to humans.

IR
An abbreviation for infrared.

IrDA
Infrared Data Association. An organization which produces standards for communication using infrared as the carrier.

IRQ
Interrupt Request. An acronym for the hardware signal to the CPU that an external event has occurred which needs to be processed.

KB
Kilobyte.

LAN
Local Area Network. An interconnection of computers and peripherals within a single limited geographic location which can pass programs and data amongst themselves.

LCD
Liquid Crystal Display. A type of display which makes images by controlling the orientation of crystals in a crystalline liquid.

Lithium ion Battery
A type of rechargeable battery which has a high power-time life for its size and is not subject to the memory effect as Nickel Cadmium batteries.

LPT Port
Line Printer Port. A way of referring to parallel interface ports because historically line printers were the first and latter the most common device connected to parallel ports.

MB
Megabyte.

Megahertz
1,000,000 cycles per second.

Memory
A repository for data and applications which is readily accessible to your notebook CPU.

MHz
Megahertz.

MIDI
Musical Instrument Digital Interface. A standard communication protocol for exchange of information between computers and sound producers such as synthesizers.

Modem
A contraction for MOdulator-DEModulator. The equipment which connects a computer or other data terminal to a communication line.

Monaural
A system using one channel to process sound from all sources.

MPU-401
A standard for MIDI interfaces and connectors.

NTSC
National TV Standards Commission. The standard for TV broadcast and reception for the USA.

Operating System
A group of control programs that convert application commands, including driver programs, into the exact form required by a specific brand and model of micro-processor in order to produce the desired results from that particular equipment.

Parallel Port
A connection to another device through which data is transferred as a block of bits simultaneously with a wire for each bit in the block and with other wires only for control of the device not for transfer of data.

Partition
A block of space on a hard drive which is set aside and made to appear to the operating system as if it were a separate disk, and addressed by the operating system accordingly.

PCMCIA
PCMCIA is a trademark of the Personal Computer Memory Card International Association. The Personal Computer Memory Card International Association is an organization that sets standards for add-in cards for personal computers.

Peripheral Device
A piece of equipment which performs a specific function associated with but not integral to a computer. Examples: a printer, a modem, a CD-ROM.

Pitch (keyboard)
The distance between the centers of the letter keys of a keyboard.

Pixel
The smallest element of a display, a dot of color on your display screen. The more pixels per area the clearer your image will appear.

POST
Power On Self Test. A program which is part of the BIOS which checks the configuration and operating condition of your hardware whenever power is applied to your notebook. Status and error messages may be displayed before the operating system is loaded. If the self test detects failures that are so serious that operation can not continue, the operating system will not be loaded.

Program
An integrated set of coded commands to your computers telling your hardware what to do and how and when to do it.

PS/2
An IBM series of personal computers which established a number of standards for connecting external devices such as keyboards and monitors.

RAM
Random Access Memory. A hardware component of your notebook that holds binary information (both program and data) as long as it has the proper power applied to it.

RAM Module
A printed circuit card with memory and associated circuitry which allows the user to add additional memory to the computer without special tools.

Reset
The act of reloading the operating system. A reset erases all information stored in RAM.

Restart
See Reset.

Resume
To proceed after interruption. In your notebook this refers to returning to active operation after having been in one of the suspension states.

ROM
Read Only Memory. A form of memory in which information is stored by physically altering the material. Data stored in this way can not be changed by your notebook and does not require power to maintain it.

SDRAM
Synchronous Dynamic Random Access Memory.

Serial Port
A connection to another device through which data is transferred one bit at a time on a single wire with any other wires only for control of the device not for transfer of data.

Shadow RAM
A technique of copying data or applications stored in ROM (Read Only Memory) into RAM (Random Access Memory) for access during actual operation. RAM is much faster to access than ROM, however ROM contents are not lost when power is removed. Shadowing allows permanently stored information to be rapidly accessed.

SMART
Self-Monitoring, Analysis and Reporting Technology (SMART) is an emerging technology that provides near-term failure predictions for hard drives. When SMART is enabled the hard drive monitors pre-determined drive attributes that are susceptible to degradation over time. If a failure is likely to occur, SMART makes a status report available so that the LifeBook can prompt the user to back up the data on the drive. Naturally not all failures are predictable. SMART predictability is limited to those attributes which the drive can self-monitor. In those cases where SMART can give advance warning, a considerable amount of precious data can be saved.

SRAM
Static random access memory. A specific technology of making RAM which does not require periodic data refreshing.

Status Indicator
A display which reports the condition of some portion of your hardware. On your notebook this is an LCD screen just above the keyboard.

Stereo (audio)
A system using two channels to process sound from two different sources.

Stroke (keyboard)
The amount of travel of a key when it is pressed from resting to fully depressed.

Suspend
To make inoperative for a period of time. Your notebook uses various suspension states to reduce power consumption and prolong the charge of your battery.

SVGA
Super VGA.

S-Video
Super Video. A component video system for driving a TV or computer monitor.

System Clock
An oscillator of fixed precise frequency which synchronizes the operation of the system and is counted to provide time of day and date.

TFT
Thin Film Transistor – A technology for flat display panels which uses a thin film matrix of transistors to control each pixel of the display screen individually.

UL
Underwriters Laboratories – An independent organization that tests and certifies the electrical safety of devices.

VGA
Video Graphics Array. A video display standard originally introduced by IBM with the PS/2 series of personal computers.

VRAM
Video Random Access Memory. A memory dedicated to video display data and control.

WFM
Wired for Management is Intel's broad-based initiative to reduce the total cost of ownership(TCO) of business computing without sacrificing power and flexibility.

Write Protect
Prevent alteration of the binary state of all bits in a storage media. Example: all information on a device such as a floppy diskette; a block of space in a storage media such as a partition of a hard drive; a file or directory of floppy diskette or hard drive.

XGA
Extended VGA.

Zip Drive
A 100MB read/write removable media disk drive.

Zoomed Video
A PC Card port which allows notebook PCs to deliver full screen broadcast quality video through third party PC Cards, including TV tuners, video capture, and MPEG full-motion video.

Index

A

AC
adapter 39, 99, 103
indicator 16
plug adapters 92
Anti-theft Lock Slot 12
Application
See Pre-installed Software
Audio 98
Auto/Airline Adapter 39, 103
Automatic Insertion Function 56, 60
disabling 56

B

Battery 79, 80
alarm 52
bay 13
care 92
charging indicator 17
conserving power 44
dead 79
faulty 79
increasing life 92
level indicators 16
lithium ion battery 51, 105
low 52
recharging 51
replacing 52
shorted 52
suspend mode 52
BaySwap 28, 35
BIOS 103
Guide 42
memory 97
setup utility 41
Boot 103
Boot Sequence 41
Built-in Microphone 10
Built-in Speakers 74

C

Cache Memory 97, 103
CapsLock 18
CD-ROM
care 93
drive 55, 98
loading 55
CD-RW Drive 98
Clicking 21, 23
Closed Cover Switch 11
Cold-swap 27
COMM Port 103
Communications 98
Communications Port 12, 67
Configuration Label 15, 97
Cursor 21, 23
Cursor Keys 20

D

DC Output Cable 39
DC Power Jack 12, 39
Device Ports 67, 98
DIMM 65
Disk
access indicator 18
care 92
drive 53
ejecting 53
formatting 53
initializing 53
loading 53
preparing 53
software eject 53
write protect 54
Display 81, 82
Display Panel 10, 40
adjusting 40
brightness 40
closing 40
latch 10
opening 40
power management 40

Display Timeout 46
Docking Port 14, 69
Docking Station 75
Double-Clicking 21, 23
Dragging 22, 24
Drivers and Application CD 87
DVD Player Control Panel 59
  using 59
DVD Player Software 57
  installing 57
  un-installing 57
  using 58
DVD/CD-ROM
  access indicator 17
  care 93
  control panel 59
  drive 57, 74, 98
  loading 58
  player software 57
  removing 58
  tray release 85
  using 59

E

Emergency Recovery CD 86
ErgoTrac 21
  buttons 21, 22
  controls 22
  motion 22
  pointers 22
Error Messages 83
Expansion Memory 97
Extended Memory 104
External Floppy Disk Drive Port 14
External Monitor Port 14, 69

F

Fdisk 61
Flexible Bay 13, 26, 98
  cold-swapping 27
  devices 26
  hot-swapping 28
  installing 27
  release button 13
  removing 27
  warm-swapping 27
Floppy Disk Drive 53, 75, 98
  access indicator 18
  care 93
  port 69
Function Key
  F10 20
  F5 20
  F6 20
  F7 20
  FN 20

H

Hard Disk Drive 61, 76, 98
  access indicator 17
  formatting 61
  installing 62
  internal 61
  removable 61, 62
  removing 62
Hard Disk Timeout 46
Headphone Jack 11, 69
Hot-swap 28

I

Idle Mode 46
Infrared Port 12, 68
Integrated Pointing Device 98
Internal Hard Drive Release Button 12
Internal LAN Jack 67
IR Wireless Mouse Receiver 11
IrDA 68

K

Keyboard 11, 19, 76, 99
  cursor keys 19
  function keys 19
  numeric keypad 19
  windows keys 19

L

LifeBook Security Application Panel 11, 35, 98
buttons 32
configuring 32
deactivating 33
launching applications 31
operating 30
passwords 29
setup 29
uninstalling 31
LifeBook Series Notebook
care 91
storing 91
traveling 91
LS-120
disk 53
drive 53, 98

M

Memory 97
capacity 66
compartment 15, 65
extended 66
installing 65
removing 66
system 66
upgrade module 65
Memory Upgrade Module 77
Microphone Jack 11, 68
Modem Jack 67
Modem Result Codes 85
Modular Devices 27
installing 27
removing 27
Mouse
See ErgoTrac and/or Touchpad

N

Numeric Keypad 19
NumLk 18

P

Parallel Port 14, 67, 77, 105
PC Card 63, 78
access indicator 18
care 93
eject 64
installing 63
removing 64
slot 12
type II 63
unlock 64
Pointing Device 11
ErgoTrac 21
Touchpad 23
POST 105
Power 99
AC adapter 39
Auto/Airline adapter 39
button 11
failure 78, 79
indicator 16
management 44
off 47
on 41
sources 39
Power Management 44, 46
Power On Self Test 41, 83
Power/Suspend/Resume button 41, 44
Pre-Installed Software 34, 98
manuals 34
restoring 86
tutorials 34
Processor 97
PS/2 106
PS/2 Port 14, 67

R

Recovery CD 86
Registration 42, 43
Reset Switch 12
Resolution 97
Restarting 47
RJ-11 67
RJ-45 67

S

Save-to-Disk Mode 20, 44
ScrLk 18
SDRAM 15, 65
Security Application Panel 29
Serial Port 14, 67, 77, 106
Shut Down 47
Software
  See Pre-installed Software
Specifications 97
Standby Mode 46
Status Indicator Panel 10, 16
Stereo Line-in Jack 11, 69
Stereo Speakers 11
SuperDisk Drive 53
  access indicator 18
Suspend 106
Suspend Mode 44
Suspend/Resume Button 11, 80
System Memory 97

T

Theft Prevention Lock 98
Touchpad 23
  buttons 23, 24
  controls 24
  motion 24
  pointers 24
Troubleshooting 73

U

Universal Serial Bus Port 68
USB 68, 77
  port 14

V

Video 97
Video RAM 98
Volume 11, 25

W

Warm-swap 27
Windows 42, 43
  certificate of authenticity 43
  end user license agreement 43
  product key 43
Windows keys 19
  Application key 19
  Start keys 19
Wireless Infrared Mouse Port 68

FUJITSU PC CORPORATION

Fujitsu PC Corporation
598 Gibraltar Drive
Milpitas, California 95035

For more information
call 1-888-4-ON-THE-GO
or visit our Web site
at www.fujitsu-pc.com

Fujitisu and the Fujitisu logo are registered trademarks and LifeBook is trademark of Fujitisu Ltd. ErogTrac is a trademark of Fujitisu PC Corporation. All other trademarks mentioned herein are the property of their respective owners. ©1999 Fujitisu PC Corporation. All rights reserved.
EUG.1099

FPC58-0313-01